

NINETEENTH ANNUAL REPORT

OF THE

CHIEF INSPECTOR OF MINES

TO THE

GOVERNOR OF THE STATE OF OHIO,

For the Year 1893.

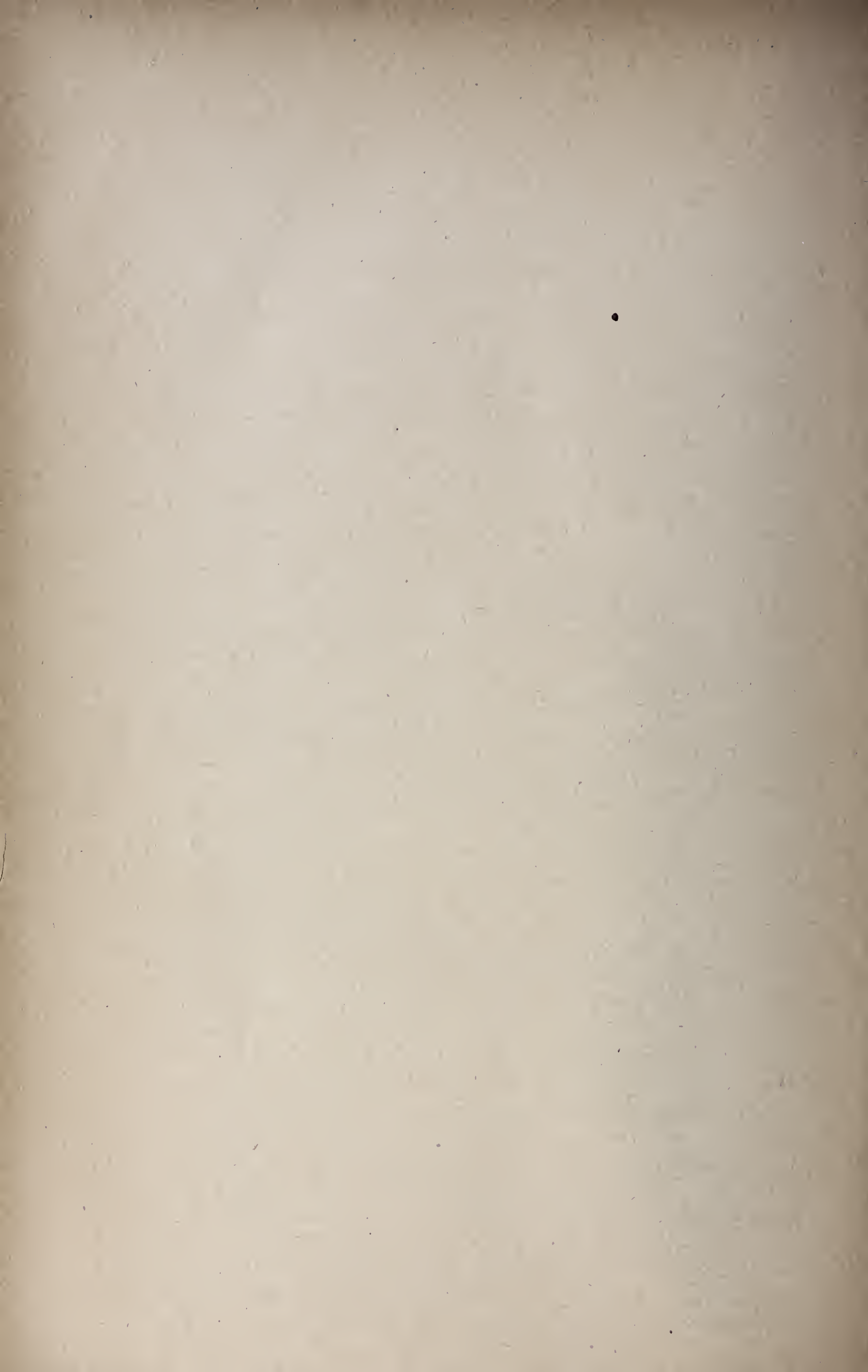
OFFICE OF THE CHIEF INSPECTOR OF MINES,
COLUMBUS, OHIO, *July 26, 1894.*

HON. WILLIAM MCKINLEY, *Governor of Ohio :*

SIR: In accordance with the Revised Statutes relative to mines and mining, I have the honor to submit to your Excellency the nineteenth annual report of this department.

Very respectfully yours,

R. M. HASELTINE,
Chief Inspector of Mines.



Annual Report.

To His Excellency, WILLIAM MCKINLEY, Governor of Ohio:

SIR: In compliance with the provisions of the statutes relating to mines and mining in Ohio, I have the honor to herewith submit the nineteenth annual report of the department for the year 1893.

In submitting the year's record of the mining industries of the state, I report with regret that the depression in the commercial interests of the country during the year has been of such severity as to render the returns on the capital invested in the mining industries of the state by no means satisfactory.

The demand during the fore part of the year can be characterized as having been fair, although the transactions were made at prices which were not calculated to stimulate the increased investment of capital in mining enterprises, while the latter half of the year can be appropriately termed as a period of industrial paralysis, and labor troubles which usually accompany such periods were continually present in the several mining districts in the state.

As a result of the financial difficulties, the developments of new fields of mineral wealth are not deemed of sufficient importance to warrant the setting apart of a separate chapter for their consideration. By the building of an extension of the Ohio Southern Railway, in Jackson and Vinton counties, it was made possible to develop one of the limestone veins of that section not heretofore extensively mined. The Hanging Rock Coal Co. and the Ætna Coal Co. have made extensive improvements here during the year. At Lower City in Guernsey county, the Robins Coal Co. have drilled and opened a large field of the Upper Freeport or the No. 7 vein. This tract lies east of the main line of the Baltimore & Ohio Railway, and develops a territory in which this vein was heretofore supposed to be wanting. Several openings have been made into the No. 3 vein as it is locally known at Leetonia and New Lisbon in Columbiana county. There were several basins drilled in the Massillon district, Stark county, two of which were opened, and a promising basin of the Mahoning block coal in Liberty township in Trumbull county was opened and developed by Col. Evan Morris of Girard.

As provided in section 293 Revised Statutes, the statistical portion of the report considers the production of coal, iron ore, fire-clay and limestone during the calendar year. In the production of coal it will be

seen that notwithstanding the adverse conditions of the coal trade during the latter half of the year, the production is given as 14,828,097 tons; this is 228,189 tons in excess of the amount mined during the preceding year whose output was the greatest in the state's history. The portion produced by pick mining is reported as 12,275,023 tons and the output by mining machines is given as 2,553,074 tons, which is an increase of 313,994 tons. The average time worked in the mines of the state is returned as 174 days.

The footings show that 28,810 persons found employment in the mining industries of the state; of these, 19,497 were employed as pick miners; 379 were machine men; 2,587 were engaged in blasting down and loading the coal after the machines, and 6,347 were day hands employed both inside and out of the mines.

There were 1,009 mines in the state; of which, 957 were in operation either the whole or part of the year; 107 new mines were opened, 46 remained suspended and 62 were worked out and abandoned.

There were 327 casualties in and about the mines of the state during the past year. These have been subdivided into three classes. The first embraces those which resulted fatally. Of these there were thirty-four, one of which occurred in an iron ore mine, and one in a fire-clay mine, thus leaving thirty-two for which the coal industry is responsible. This is a decrease of ten as compared with the year of 1892. Those of a serious nature are enrolled in the second class; of these the returns show 124. This is an increase of thirty-one as compared with the preceding year. Under minor accidents it is found that there were 169, which is thirteen in excess of the year 1892. As will be seen in another portion of this report, no accidents emanating from an unusual source occurred during the year just closed.

No change has occurred in the personal of the department since the last report; this fact permitted the inspections to proceed without interruption throughout the fiscal year which closed on November 15th. The benefits thus accruing during the year's work will be seen by a glance at the chapters on inspections made and permanent improvements secured.

The number of scales tested are returned as 120, which is thirty-four in excess of the greatest number before reported.

With regard to the permanent improvements made in and about the mines, in both character and number, the returns indicate a most marked advancement as compared with former years.

Light carburetted hydrogen gas has been found to generate in thirty-six mines in the state. These are distributed over nine counties and although they are all of the class recorded as large mines, there were but two persons injured by this treacherous element during the year, and their injuries were reported as of a minor character.

The fire-clay industry which during recent years has made most rapid advances in development, for the first time in eight years and for

the second time since it has been attached to the department, returns a loss in production as compared with the preceding year.

The production of iron ore is given at 68,220 tons, the lowest of any year during which the department has kept a record, with the exception of 1891 when it dropped to 67,984 tons. The decrease in the output has annually continued until it has ceased to be an important factor in the mineral resources of the state.

In the production of limestone the returns indicate a great diminution in the quantity produced in six of the nine classifications under which it is prepared for market. Of the forty-four lime producing counties of the state, but thirty-eight made returns during the year.

On two occasions during the past year the aid of the courts was invoked. These are the first instances during the writer's term of office in which in order to secure an imperative compliance of the law an appeal to the courts became necessary. This resulted in an expenditure of the appropriation provided for that purpose and the additional necessity of creating a deficiency to the amount of ten dollars; all of this was duly reported to the finance committee of the last general assembly.

The several subjects appertaining to the state's mineral industries will be found in this report arranged in the order thought to be most convenient for ready reference.

COAL SHIPPED TO THE LAKE PORTS DURING THE YEAR.

From the accompanying table will be seen the tonnage of coal that was delivered to the docks at the various lake ports during the year. The gross amount is given at 7,773,588 tons, which is an increase of 176,776 tons as compared with that of 1892. Of the total amount, 4,629,612 tons was bituminous coal, an increase of 272,947 tons, or $5\frac{9}{10}\%$ as compared with the preceding year. Of this amount 46% came from Ohio mines, a gain of 1% as compared with 1892.

It will be observed in the distribution that $99\frac{1}{10}\%$ of the anthracite and $81\frac{2}{3}\%$ of the bituminous coal went to American ports.

By the second table it will be seen that the list has been increased by the addition of Conneaut, at which place the docks were completed during the year.

Of the ten ports of shipment it will be seen that losses amounting to 377,736 tons occur at Buffalo, N. Y., and Cleveland and Huron, O. At the seven remaining ports there were gains amounting to 554,512 tons. The net increase in lake shipments during the year being 176,776 tons.

LAKE TONNAGE.

TABLE SHOWING THE LAKE TONNAGE SHIPPED FROM PENNSYLVANIA, OHIO AND WEST VIRGINIA MINES DURING 1893 ALSO THE VARIETY AND HOW IT WAS DISTRIBUTED.

Ports.	Pennsylvania.		Ohio.	W. Va.	Foreign ports.		Domestic ports.		Fuel for vessels.	Total amount of lake coal.
	Anthracite.	Bituminous.	Bituminous.	Anthracite.	Bituminous.	Anthracite.	Bituminous.			
Buffalo, N. Y	2,703,673	.....	.....	.....	27,450	.....	2,676,223	.....	.....	2,703,673
Erie, Pa.....	440,303	184,720	.....	.....	129	3,694	440,174	96,715	84,311	625,023
Conneaut.....	.....	23,184	.....	.....	.....	.....	.....	20,103	3,081	23,184
Ashtabula.....	.....	787,653	.....	.....	.....	80,579	.....	634,600	72,474	787,653
Fairport .....	.....	234,089	.....	.....	.....	2,033	.....	205,981	26,075	234,089
Cleveland.....	.....	961,288	448,540	102,480	.....	164,135	.....	1,095,567	252,606	1,512,308
Lorain.....	.....	12,637	356,292	157,476	.....	12,637	.....	506,723	7,045	526,405
Huron.....	.....	15,455	211,989	.....	.....	125	.....	215,564	11,755	227,444
Sandusky .....	.....	.....	183,991	11,285	.....	8,276	.....	161,000	26,000	195,276
Toledo .....	.....	1,440	927,553	9,540	.....	21,033	.....	843,133	74,367	938,533
Totals.....	3,143,976	2,220,466	2,128,365	280,781	27,579	292,512	3,116,397	3,779,386	557,714	7,773,588

Total lake shipments 7,773,588 tons.

Total lake shipments bituminous coal, 4,629,612 tons.

TABLE SHOWING SHIPMENTS OF COAL FROM LAKE PORTS DURING 1890, 1891, 1892, 1893, INCLUSIVE.

Lake ports.	1890.	1891.	1892.	1893.	Gain in 1893.	Loss in 1893.
Buffalo, N. Y.....	2,044,134	2,365,895	2,852,330	2,703,673	.....	148,657
Erie, Pa.....	129,304	586,990	567,028	625,023	57,995	.....
Conneaut, O .....	.....	.....	.....	23,184	23,184	.....
Ashtabula, O.....	452,394	386,375	726,267	787,653	61,386	.....
Fairport, O.....	63,360	66,914	114,738	234,089	119,351	.....
Cleveland, O.....	922,536	1,016,487	1,728,831	1,512,308	.....	216,523
Lorain, O.....	227,181	288,811	351,168	526,405	175,237	.....
Huron, O.....	150,000	200,000	240,000	227,444	.....	12,556
Sandusky, O.....	271,540	157,571	157,515	195,276	37,761	.....
Toledo, O.....	940,000	947,288	858,935	938,533	79,598	.....
Totals.....	5,200,449	6,016,331	7,596,812	7,773,588	554,512	377,736

THE YEAR'S PRODUCTION OF COAL.

The following table is designed to exhibit the production of coal in the state during the calendar year of 1893.

The total output for the year was 14,828,097 tons, an amount never before equaled in the state's history.

The amount produced in each county of the several classifications, as it is separated to meet the demands of the market, will be found in separate columns designating the grade of each. By comparing the production with that of the preceding year, it will be seen that the total increase in all grades during the year amounted to 228,189 tons. The footings show a gain in the production of lump coal of 253,343 tons. In nut coal the increase amounted to 54,180 tons, while under pea and slack there appears a decrease of 79,334 tons.

In point of production, the first five counties occur in the same order as during 1892. Jefferson, which previously occupied the eighth, moved up during the past year to the sixth position and Stark dropped from sixth to seventh in the column of producing counties. Tuscarawas moved back from seventh to eighth and Columbiana and Guernsey remained in the same relation as during the preceding year.

The counties of Perry, Hocking and Athens, which embrace the Hocking Valley district, as it is known in the industry, produced 5,694,341 tons, which equals $38\frac{4}{10}\%$ of the entire output of the state. This is an increase of $\frac{7}{10}\%$ of 1% as compared with the previous year.

Perry county remains the banner producing county in the list, with an output exceeding two million tons. In each of the counties of Hocking, Jackson, Athens, Belmont and Jefferson the production exceeded one million tons. In Stark, Tuscarawas, Columbiana and Guernsey it was in excess of one half million tons. The ten leading counties appear in the following order: Perry, Hocking, Jackson, Athens, Belmont, Jefferson, Stark, Tuscarawas, Columbiana and Guernsey.

The production of the several grades of coal in each of the mineral producing counties of the state will be found in the accompanying table.

COAL PRODUCTION OF THE STATE BY COUNTIES DURING THE YEAR OF 1893.

Counties.	Tonnage for 1893.			Total 1893.
	Lump.	Nut.	Pea and slack.	
Athens	1,311,888	163,108	157,855	1,632,851
Belmont.....	859,929	195,571	222,040	1,277,540
Carroll	183,795	50,976	55,488	290,259
Columbiana	440,600	106,415	89,593	636,608
Coshocton.....	214,800	40,478	50,407	305,769
Gallia	4,496	8	788	5,292
Guernsey.....	364,835	75,414	94,167	534,416
Harrison	12,113	1,855	730	14,698
Holmes	7,843	2,501	3,837	14,181
Hocking	1,559,612	217,332	113,052	1,889,996
Jackson.....	1,275,642	322,108	181,020	1,778,770
Jefferson.....	747,920	186,745	203,418	1,138,083
Lawrence	64,283	15,537	921	80,741
Mahoning	145,652	20,866	31,852	198,370
Medina.....	144,874	20,213	32,318	197,405
Meigs	211,728	37,415	29,419	278,562
Morgan.....	10,000	2,000	2,500	14,500
Monroe	4,068	400	400	4,868
Muskingum	257,126	39,567	67,374	364,067
Noble.....	12,034	1,536	1,790	15,360
Perry	1,796,067	226,171	149,257	2,171,495
Portage.....	65,797	14,087	14,702	94,586
Scioto.....	769	.....	.....	769
Stark	640,906	66,461	123,657	831,024
Summit.....	75,492	7,151	14,397	97,040
Trumbull.....	20,517	.....	2,635	23,152
Tuscarawas.....	544,397	95,210	155,074	794,681
Vinton	52,173	18,421	5,550	76,144
Washington.....	1,160	660	116	1,936
Wayne.....	56,362	7,441	1,131	64,934
Totals.....	11,086,962	1,935,647	1,805,488	14,828,097

The accompanying table is designed to exhibit the gain and loss in the total coal production in each county in the state as compared with that of 1892. From this it will be seen that in fourteen counties there was an increase of 705,340 tons in the production as compared with twenty-one counties in which the gain was 1,683,793 tons during the year of 1892. The greatest increase during the year just closed occurred in Jefferson county, followed by Perry, Muskingum, Coshocton, Athens, Belmont, Hocking and Columbiana.

The counties of Gallia, Guernsey, Lawrence, Mahoning, Medina, Meigs, Morgan, Scioto, Stark and Tuscarawas, which returned gains last year, report losses during the year just closed. The counties of Belmont and Columbiana, which returned losses during 1892, report gains during 1893.

A decrease in the production appears in sixteen counties during the year, aggregating 477,151 tons, as compared with losses in eight counties, aggregating 134,072 tons, during 1892.

The largest decrease appears in Stark county, followed by Tuscarawas, Lawrence, Mahoning, Guernsey and Trumbull.

Again, the counties of Holmes, Summit, Trumbull, Vinton, Washington and Wayne, which returned losses during 1892, return still further losses during 1893.

By the comparison with former years, it is found that during 1888 losses were reported in thirteen counties; during 1889 they appear in sixteen counties; in 1890, in eleven; in 1891, in thirteen; during 1892 in eight; while in the past year they occur in sixteen. From this it will be seen that the number of counties which reported a decrease in production during 1893 is in excess of any year during which the writer has had charge of the department.

TABLE EXHIBITING THE TOTAL COAL TONNAGE OF THE STATE BY COUNTIES DURING THE YEARS OF 1892 AND 1893, AND THE GAIN AND LOSS IN EACH COUNTY.

Counties.	1892.	1893.	Gain.	Loss.
Athens	1,590,507	1,632,851	42,344	.....
Belmont.....	1,249,423	1,277,540	28,117	.....
Carroll	273,272	290,259	16,987	.....
Columbiana	610,179	636,608	26,429	.....
Coshocton.....	244,749	305,769	61,020	.....
Gallia	19,634	5,292	.....	14,342
Guernsey	572,281	534,416	.....	37,865
Harrison	8,646	14,698	6,052	.....
Holmes.....	16,666	14,181	.....	2,485
Hocking	1,863,303	1,889,996	26,693	.....
Jackson	1,770,742	1,778,770	8,028	.....
Jefferson	879,500	1,138,083	258,583	.....
Lawrence.....	127,074	80,741	.....	46,333
Mahoning	242,515	198,370	.....	44,145
Medina.....	220,149	197,405	.....	22,744
Meigs	308,127	278,562	.....	29,565
Morgan	19,000	14,500	.....	4,500
Monroe .....	.....	4,868	4,868	.....
Muskingum.....	264,473	364,067	99,594	.....
Noble	9,995	15,360	5,365	.....
Perry	2,056,896	2,171,495	114,599	.....
Portage.....	87,925	94,586	6,661	.....
Scioto.....	1,180	769	.....	411
Stark	938,519	831,024	.....	107,495
Summit	110,299	97,040	.....	13,259
Trumbull	55,775	23,152	.....	32,623
Tuscarawas.....	887,106	794,681	.....	92,425
Vinton	88,305	76,144	.....	12,161
Washington	3,480	1,936	.....	1,544
Wayne.....	80,188	64,934	.....	15,254
Totals.....	14,599,908	14,828,097	705,340	447,151

TABLE GIVING THE COAL OUTPUT OF THE STATE FROM 1872 TO 1893, INCLUSIVE

Years.	Tons.	Gain.	Loss.
1872.....	5,313,294	.....	.....
1873.....	4,550,028	.....	76,526
1874.....	3,267,585	.....	128,244
1875.....	4,864,259	1,596,674	.....
1876.....	3,500,000	.....	1,364,259
1877.....	5,250,000	1,750,000	.....
1878.....	5,500,000	250,000	.....
1879.....	6,000,000	500,000	.....
1880.....	7,000,000	1,000,000	.....
1881.....	8,225,000	1,225,000	.....
1882.....	9,450,000	1,225,000	.....
1883.....	8,229,429	.....	1,220,571
1884.....	7,650,062	.....	579,367
1885.....	7,816,179	166,117	.....
1886.....	8,435,211	619,032	.....
1887.....	10,301,708	1,866,479	.....
1888.....	10,910,946	613,338	.....
1889.....	10,907,385	.....	3,561
1890.....	11,788,859	881,474	.....
1891.....	13,050,187	1,261,328	.....
1892.....	14,599,908	1,549,721	.....
1893.....	14,828,097	228,189	.....

COAL MINED BY MACHINERY DURING THE YEAR.

The annual increase in the production of coal mined by machinery made it seem best to arrange the year's output in tabular form.

From the accompanying table it will be seen that 2,553,074 tons were produced by this method, an increase of 313,994 tons as compared with the preceding year, and the largest by the above amount of any year of which a record has been kept by the department.

The returns indicate that during the year, machine mining has been confined to ten of the coal producing counties of the state as compared with eight during 1892 and eleven during 1891. Part of this variation was caused by Guernsey county which dropped from the list in 1892 but entered again in 1893.

The largest production returned was from Hocking county followed by Athens and Perry. These three counties embrace the Hocking Valley region in which the returns indicate that the production from this source amounted to 2,429,512 tons, which equals 95 1-6 per cent. of the year's production of machine mined coal as compared with 93 4-10 per cent. during 1892; of this Hocking county produced 55 1-10 per cent. There were 379 hands employed in operating the mining machines which indicates a gain of thirty-five as compared with the year of 1892.

In preparing the coal for market, after it has been undermined by the machines, another set of men called followers, drill the holes, blast it down and load it into the mine cars. Of this class the returns show that there were 2,587, which is a gain of 286 as compared with the preceding year.

In the time worked the greatest was in Jackson county, the least in Guernsey, while the average in the nine counties was thirty-two weeks, a gain of three weeks, as compared with the average time worked in the mines throughout the state.

From the following table there will appear a more detailed report of this branch of the coal industry:

TABLE SHOWING THE AMOUNT OF COAL MINED BY MACHINERY, THE TIME WORKED AND THE NUMBER OF DAY HANDS EMPLOYED.

Counties.	Weeks.	Hands operating machines.	Hands following machines.	Lump.	Nut.	Pea and slack.
Athens.....	31	120	703	547,056	37,648	33,337
Belmont.....	30	18	45	34,150	4,000	9,534
Guernsey.....	24	10	.....	6,700	800	18,000
Hocking.....	28	146	1,261	1,214,648	66,334	58,015
Jackson.....	48	8	16	18,534	2,558	2,558
Muskingum.....	25	4	.....	3,228	.....	1,000
Perry.....	29	69	559	416,646	44,891	10,937
Summit	42	2	3	2,400	100	.....
Tuscarawas	30	10	.....	20,000	.....	.....
Totals.....	32	379	2,587	2,263,362	156,331	133,381

Total production, 2,553,074 tons.

TABLE SHOWING THE ANNUAL PRODUCTION OF COAL MINED BY MACHINERY SINCE THE INTRODUCTION OF ELECTRICITY INTO THE MINES OF THE STATE.

Years.	Tons.	Gain.	Loss.
*1889.....	900,000	.....	.....
1890.....	1,148,449	248,449	.....
1891.....	1,654,081	505,632	.....
1892.....	2,239,080	584,999	.....
1893.....	2,553,074	313,994	.....

* The first coal mined by electricity.

MINES IN WHICH MINING MACHINES ARE USED AND THE NUMBER AND CLASS OF EACH.

Installations were made at five mines during the year, four of which, viz. : Orbiston, Dallton, Congo and Fairview were new plants. At Trail Run where the use of machines had been abandoned for two years they were reinstalled.

The returns indicate that there has been an increase in the number of mines which win coal by this method. There has also been an increase in the number of machines in use in mines in which they had previously been introduced.

The number of installations has fallen far short of that which preparations at the beginning of the year indicated might be expected. This no doubt is entirely due to the financial difficulties which seriously retarded the investment of new capital in the industry. They also were responsible for a reduction in the price of pick mining to a figure which did away in great measure with any advantage which machine mining had previously commanded.

A further preventive to increased installation arose by reason of the irregular operation of the mines whereby the fixed charges that exist in operating machine mines still further destroyed any advantage that might exist as compared with pick mining.

From the following table it will be seen that at the close of the year mining machines have been installed in twenty-nine mines in the state.

The footings show that one hundred and forty-eight machines are in use, which is an increase of nineteen as compared with the year of 1892; of this number, ninety-five are of the Jeffrey manufacture, an increase of fifteen; forty-two of the Harrison pattern, a gain of three; nine Ingersoll Sergeant, a gain of one, and two of the new Leichner.

As an operating power compressed air is used at eighteen mines, in which there is operated one hundred and seven machines, an increase of

five as compared with the preceding year; of this number fifty-six are Jeffrey, forty-two Harrison and nine of the Ingersoll-Sergeant pattern.

Electricity is employed to operate forty-one machines in use in thirteen mines, an increase of fourteen as compared with 1892; of this number, thirty-nine are of the Jeffrey manufacture and two of the new Leichner. Of the year's increase in number $73\frac{7}{10}\%$ were electric machines and $26\frac{3}{10}\%$ were compressed air.

Two electric motors were used in handling the coal in the mines. One at Upson mine in Perry county, which was made by the Jeffrey Company, and a Schlesinger motor at the Morgan Run mine in Coshocton county, both of which have been in use since 1890.

TABLE SHOWING THE NUMBER OF MINING MACHINES IN USE IN THE MINES OF THE STATE, ALSO THE NAME OF THE MANUFACTURER, POWER USED AS MOTIVE, AND THE MINES AND COUNTIES IN WHICH THEY ARE SITUATED.

Name of mines.	Counties where mines are located.	Power employed.					
		Electricity.		Compress'd air.			Electric motors.
		Jeffrey.	New Leichner.	Jeffrey.	Harrison.	Ingersoll-Sergeant	Jeffrey. Schlesinger.
Hamley Run.....	Athens.....			1	1		
Sunday Creek No. 10.....	".....			9			
Minker Run.....	".....			5	2		
Jumbo.....	".....	3					
Black Diamond.....	".....	2					
Rend's No. 4.....	".....			5			
Brier Ridge.....	".....			5			
Orbiston.....	".....	3					
Crescent.....	".....	4					
Dallton.....	".....		2				
Flushing.....	Belmont.....				10		
Trail Run.....	Guernsey.....				5		
Star No. 3.....	Jackson.....			2		2	
C. & H. C. & I. No. 19.....	Hocking.....			5	2		
New Pittsburgh.....	".....	3		10	4		
Morris Coal Co. Nos. 1, 2, 3.....	".....	8		6	2	1	
Consolidated.....	".....			3	10		
Lost Run.....	".....	4					
Harper's 3 ft. and 4 ft.....	Musking'm.....				2		
C. & H. C. & I. No. 3.....	Perry.....	4					
Congo.....	".....	5					
Fairview.....	Summit.....					1	
Brockhill.....	Tuscarawas.....					5	
No. 21, S. C. C. Co.....	Perry.....			5	4		
Upson's.....	".....	3					1
Morgan Run.....	Coshocton..	Did not report.					1
Glen Ebon.....	Athens.....	Idle.					
Totals.....		39	2	56	42	9	1 1

TABLE SHOWING THE NUMBER OF MINES IN THE STATE DURING THE YEAR
AND THE AVERAGE NUMBER OF WEEKS DURING WHICH THEY WERE IN
OPERATION, ALSO A COMPARISON OF EACH WITH 1892.

Counties.	Number of mines worked in 1892.	Number of mines worked in 1893.	Gain in 1893.	Loss in 1893.	Average number of weeks worked dur- ing 1893.	Gain in weeks worked 1893	Loss in weeks worked 1893.
Athens.....	45	55	10	.....	30	.....	2
Belmont.....	76	80	4	.....	29	.....	14
Carroll.....	19	17	.....	2	28	.....	2
Columbiana	58	58	0	0	34	.....	3
Coshocton	23	23	0	0	33	.....	7
Gallia	4	4	0	0	.....	.....	17
Guernsey.....	25	22	.....	3	31	1	.....
Harrison	9	13	4	.....	35	1	.....
Holmes.....	21	16	.....	5	29	.....	8
Hocking.....	26	27	1	.....	22	.....	6
Jackson	74	76	2	.....	32	.....	5
Jefferson	33	42	9	.....	39	.....	1
Lawrence.....	22	30	8	.....	34	.....	1
Mahoning.....	29	28	.....	1	32	.....	3
Medina	13	13	0	0	31	0	0
Meigs.....	21	23	2	.....	31	.....	2
Morgan	1	1	0	0	32	.....	8
Monroe.....	.....	5	5	.....	31	31	.....
Muskingum.....	64	93	29	.....	33	.....	1
Noble.....	12	21	9	.....	24	.....	5
Perry.....	55	61	6	.....	27	1	.....
Portage.....	4	6	2	.....	29	3	.....
Scioto	7	5	.....	2	16	.....	5
Stark.....	70	97	27	.....	32	.....	2
Summit.....	14	13	.....	1	33	.....	2
Trumbull.....	8	13	5	.....	19	.....	13
Tuscarawas.....	73	88	15	.....	35	0	0
Vinton	19	20	1	.....	28	.....	3
Washington	2	1	.....	1	20	2	.....
Wayne	5	6	1	.....	36	6	.....
Totals ..	832	957	140	15	29	45	110

Gain in the number of mines—125.

Average number of weeks worked—29.

Decrease as compared with 1892— $3\frac{1}{3}$.

It will be seen from the foregoing table that 957 mines were operated more or less of the time during the past year, which is an increase of 125 as compared with 1892. It is believed that this number exceeds that of any year in the state's history.

The leading counties in this connection are Stark, Muskingum, Tuscarawas and Belmont.

Gains are returned from eighteen counties, aggregating 140. The four largest are Muskingum, Stark, Tuscarawas and Athens, all of which are represented by two digits. A decrease in the number, amounting to fifteen, appears in seven counties. In five counties the number returned is the same as during the preceding year.

The returns show the average time worked to have been twenty-nine weeks, which is an average loss in each county of three and one-third weeks as compared with 1892. In eighteen counties the time worked exceeds the average; in nine it is below and in three the average is equaled. The fullest time worked is reported in Jefferson, which is given as thirty-nine weeks. By comparison with the preceding year an increase in time worked appears in but seven counties, while losses are returned in twenty-one. In Medina and Tuscarawas the time worked is the same as during 1892.

It will be seen that the average time worked was 174 days, during which there were mined 14,828,097 tons of coal, which is an average daily production of 85,218 9-10 tons, an increase as compared with the preceding year of 9,961 7-10 tons. Had the ratio of the daily output been maintained and the mines worked full time throughout the year, the production would have exceeded twenty million tons.

TABLE EXHIBITING THE NUMBER OF MINERS AND DAY-HANDS EMPLOYED IN THE SEVERAL COUNTIES OF THE STATE AS COMPARED WITH 1892.

Counties.	Number of miners employed during 1892.	Number of miners employed during 1893.	Gain 1893.	Loss 1893.	Number of day-hands employed during 1892.	Number of day-hands employed during 1893.	Gain 1893.	Loss 1893.
Athens.....	2,381	2,517	136	.....	600	631	31	.....
Belmont.....	1,509	1,719	210	.....	411	325	.....	86
Carroll.....	501	594	93	.....	127	164	37	.....
Columbiana.....	1,084	1,174	90	.....	277	225	.....	52
Coshocton.....	387	431	44	.....	98	103	5	.....
Gallia.....	32	28	.....	4	12	10	.....	2
Guernsey.....	699	914	215	.....	212	276	64	.....
Harrison.....	35	43	8	.....	6	15	9	.....
Holmes.....	56	49	.....	7	12	17	5	.....
Hocking.....	1,838	1,375	.....	463	594	393	.....	201
Jackson.....	2,384	2,599	215	.....	965	1,103	138	.....
Jefferson.....	1,170	1,896	726	.....	326	444	118	.....
Lawrence.....	322	211	.....	111	58	39	.....	19
Mahoning.....	495	427	.....	68	125	126	1	.....
Medina.....	420	414	.....	6	87	93	6	.....
Meigs.....	449	535	86	.....	164	222	58	.....
Morgan.....	30	35	5	.....	5	4	.....	1
Monroe.....	.....	14	14	.....	.....	5	5	.....
Muskingum.....	567	552	.....	15	87	117	30	.....
Noble.....	41	64	23	.....	12	19	7	.....
Perry.....	2,994	3,529	535	.....	689	910	221	.....
Portage.....	161	213	52	.....	81	55	.....	26
Scioto.....	16	5	.....	11	.....	.....	.....	.....
Stark.....	1,791	1,536	.....	255	505	491	.....	14
Summit.....	220	179	.....	41	63	46	.....	17
Trumbull.....	117	79	.....	38	43	31	.....	12
Tuscarawas.....	955	1,012	57	.....	288	355	67	.....
Vinton.....	172	161	.....	11	68	67	.....	1
Washington.....	12	10	.....	2	3	5	2	.....
Wayne.....	164	148	.....	16	52	56	4	.....
Totals.....	21,002	22,463	2,509	1,048	5,970	6,347	808	431

Gain in number of miners—1,461.

Gain in day-hands—377.

From the foregoing table it appears that 23,810 persons found employment in and about the mines of the state during the past year. Of this number, 22,463 were engaged as miners, which is a gain of 1,461 as compared with the year 1892. The greatest number reported is in Perry, Jackson, Athens, Belmont and Stark counties in the order named. Gains aggregating 2,509 are reported in sixteen counties. The most prominent being in Jefferson, Perry, Jackson and Belmont, which furnish sixty-seven per cent. of the gains reported.

Losses amounting to 1,048 are returned from fourteen counties, of which Hocking, Stark and Lawrence are the most prominent, as they collectively furnish seventy-nine per cent of the number which appears in the loss column.

Under "Dayhands employed" the footings show that there were 6,347, an increase as compared with the preceding year of 377. The greatest number reported was in Jackson, Perry, Athens, Stark and Jefferson counties.

Gains amounting to 808 are reported in eighteen counties, the greatest being in Perry, Jackson and Jefferson.

Losses equaling 431 are returned from eleven counties, of which Hocking is the most conspicuous as it furnishes $46\frac{1}{2}$ per cent. of the number.

In reviewing the summaries of the preceding tables it is found that after deducting the number of miners employed in operating mining machines from the total number returned, that there were 19,497 miners engaged in pick mining. These produced 12,275,023 tons of coal, which indicates that each miner averaged 629 tons 1,160 pounds of coal during the year.

As the mines worked an average of 174 days, it will be seen that each miner's average daily production was three tons and 1,800 pounds.

This calculation, based on "run of mine" coal which was made necessary, as at several of the mines where coal is produced by both machinery and pick mining, the record of the small coal is not kept separately. It was also made imperative owing to the coal being sold without being screened in many places of the state.

TABLE EXHIBITING THE NUMBER OF BOTH LARGE AND SMALL MINES, ALSO THE NUMBER OF EACH THAT WERE IN OPERATION DURING THE YEAR.

Counties.	Number of mines which employ more than ten men.	Number of mines which employ less than ten men.	Total by counties.	Number large mines in operation during 1893.	Number small mines in operation during 1893.	Total number mines in operation during 1893.
Athens.....	45	15	60	41	14	55
Belmont	32	49	81	32	48	80
Carroll.....	10	8	18	9	8	17
Columbiana.....	28	35	63	25	33	58
Coshocton.....	12	11	23	12	11	23
Gallia.....	1	3	4	1	3	4
Guernsey	14	9	23	14	8	22
Harrison	2	11	13	2	11	13
Holmes .....	.....	17	17	.....	16	16
Hocking	24	6	30	22	5	27
Jackson	60	20	80	58	18	76
Jefferson	15	27	42	15	27	42
Lawrence	6	25	31	6	24	30
Mahoning.....	7	22	29	6	22	28
Medina.....	7	6	13	7	6	13
Meigs.....	15	11	26	13	10	23
Morgan	1	.....	1	1	.....	1
Monroe .....	.....	5	5	.....	5	5
Muskingum	15	82	97	14	79	93
Noble.....	2	20	22	1	20	21
Perry	50	23	73	42	19	61
Portage	5	1	6	5	1	6
Scioto .....	.....	5	5	.....	5	5
Stark	24	75	99	23	74	97
Summit.....	4	9	13	4	9	13
Trumbull	5	10	15	5	8	13
Tuscarawas	24	67	91	23	65	88
Vinton	7	14	21	7	13	20
Washington.....	2	.....	2	1	.....	1
Wayne	2	4	6	2	4	6
Totals.....	419.	590	1,009	391	566	957

From the preceding table it will be observed that at the close of the year there were 1,009 mines in the state, an increase of 117 as compared with 1892. Of these 419 employ ten men and upwards and are classified as large mines. Five hundred and ninety employ less than ten men and are rated as small mines. Of the former class, the returns indicate a loss of fifteen, while of the latter they show a gain of 132. The greatest number of mines appear in Stark, Muskingum, Tuscarawas, Belmont and Jackson counties. The greatest number of large mines are in Jackson,

Perry and Athen counties, while the larger number of small mines appear in Muskingum, Stark, Tuscarawas and Belmont counties.

Of the entire number of mines in the state, the returns show that 957 were operated during the year. Of this number 391 were large mines, a decrease of three compared with 1892. The greatest number was in Jackson, Perry and Athens counties.

Of the small mines in operation there were 566, an increase of 128. The largest number appears in Muskingum, Stark and Tuscarawas counties. The number of mines that were in operation was the largest in the history of the department.

TABLE SHOWING THE NUMBER OF NEW MINES OPENED, THOSE THAT REMAINED SUSPENDED, AND THOSE THAT WERE ABANDONED DURING THE YEAR.

Counties	Number of new mines opened.	Number of mines which were suspended.	Number of mines which were abandoned.
Athens	8	4	9
Belmont	5	1	2
Carroll	1	1	.....
Columbiana	2	4	3
Coshocton.....	3	.....	2
Gallia .....	.....	.....	.....
Guernsey	2	1	1
Harrison.....	4	.....	.....
Holmes	1	1	1
Hocking.	3	2	2
Jackson.....	11	4	4
Jefferson.....	3	.....	.....
Lawrence	1	1	4
Mahoning	2	1	4
Medina	2	.....	2
Meigs	3	3	.....
Morgan.....	.....	.....	.....
Monroe.....	2	.....	.....
Muskingum.....	6	5	5
Noble	2	1	2
Perry	4	9	9
Portage	1	.....	1
Scioto .....	.....	.....	.....
Stark	23	2	2
Summit	2	.....	1
Trumbull	2	1	4
Tuscarawas	9	3	3
Vinton	5	1	.....
Washington .....	.....	1	1
Wayne.....	.....	.....	.....
Totals	107	46	62

From the accompanying table it will be seen that during the inspection year which closed on the 15th of November, 1893, 107 new mines have been opened, which is believed to be the greatest development reported during any year of which there is a record. Of this number twenty-three were in Stark county, eleven in Jackson, nine in Tuscarawas, eight in Athens and six in Muskingum. The above five counties furnished fifty-three per cent. of the entire number.

In comparing with the year of 1892, seven of the remaining counties return gains, and in twelve there appears a decrease, while in Jackson, Lawrence and Trumbull the number remained the same as during the preceding year.

In Morgan, Scioto, Gallia, Washington and Wayne no new developments are reported. In the three latter none have been reported since 1888.

In the column under "Mines which remained suspended" during the year the total number reported is forty-six, which is a decrease of fourteen as compared with the preceding year. These appear in nineteen counties. The greatest number reported is in Perry, Muskingum, Athens, Columbiana, Tuscarawas and Meigs counties.

As compared with the year 1892, seven counties show a gain of one each, while eleven show a loss amounting to twenty-one.

In Guernsey, Hocking, Jackson and Tuscarawas the number remained the same as in the preceding report.

In Harrison, Medina, Morgan, Monroe, Portage, Scioto, Summit, Tuscarawas and Wayne, none have been returned during the last two years.

The returns for the year show that sixty-two mines have been either worked out or abandoned. These are distributed over twenty counties. The greatest number appears in Athens and Perry. In eleven counties there appears an increase and in ten a decrease. In the counties of Belmont, Columbiana and Portage, the number returned was the same as during the preceding year. None were abandoned in Gallia, Harrison, Meigs, Morgan, Monroe and Scioto during the last two years.

The footings for the year just closed show an increase of sixteen in the abandoned mines as compared with 1892.

The following table exhibits in detail the number of each in the several counties of the state, and when the depression of the coal trade during the last half of the year is taken into consideration, the result is very satisfactory.

DETAILED LIST OF NEW MINES OPENED, THOSE SUSPENDED AND ABANDONED
DURING THE YEAR.

New mines.	Suspended mines.	Abandoned mines.
ATHENS COUNTY.		
Cliffe	Old Hickory.....	Kings.
Beilys.....	Glen Ebon Nos. 1 and 2.....	Allison.
Evans.....	Floodwood	Maple Hill.
Bell Run.....	Beilys.....	Springfield No. 1.
Mirkle.....	.....	No. 23.
Poston No. 1.....	.....	No. 25.
Witzel .....	.....	East Hill.
Daleton .....	.....	Burns.
.....	.....	Laurel Hill No. 1.
BELMONT COUNTY.		
Douglas	Geo. Hess.....	Zelch.
Cain .....	.....	Wild Cat.
Pelkey No. 2....	.....	.....
Sheets .....	.....	.....
Wild Cat.....	.....	.....
CARROLL COUNTY.		
Elder	Osborne... ..	.....
COLUMBIANA COUNTY.		
Briar Hill.....	Second National.....	Saltwell.
Standard	Nelson Burson.....	Coleman.
.....	Edward Braughton.....	Warner Shaft.
.....	Anderson .....	.....
COSHOCOTON COUNTY.		
Morgan Run No. 3.....	.....	Morgan Run No. 2.
Hudson .....	.....	Robinson No. 1.
Robinson No. 2 .....	.....	.....
GUERNSEY COUNTY.		
Robins	Linton.....	Wilson.
Deep-cut.....	.....	.....
HARRISON COUNTY.		
Campbell.....	.....	.....
Hedges .....	.....	.....
Clemons .....	.....	.....
Jamison No. 2.....	.....	.....
HOCKING COUNTY.		
Coalgate	Chutes .....	.....
Kistler's .....	.....	Johnson Hill.
East Hill .....	.....	Thoroughfare.
HOLMES COUNTY.		
Peters .....	.....	Killgore.

DETAILED LIST OF NEW MINES OPENED, ETC.—Continued.

New mines.	Suspended mines.	Abandoned mines.
JACKSON COUNTY.		
Ada No. 2.....	Hurd Slope.....	Hall's No. 4.
Hazel.....	Eclipse No. 1.....	Poling.
Poling No. 2	Omans.....	Victor No. 2.
Victor No. 1	R. K. Brady.....	Victor No. 3.
Bats' Nest.....	.....	.....
Omans.....	.....	Victor No. 4.
Rhodes .....	.....	.....
Shooks.....	.....	.....
Alma.....	.....	.....
Springfield No. 2.....	.....	.....
Ætna.....	.....	.....
JEFFERSON COUNTY.		
Dillon No. 2.....	.....	.....
Taylor.....	.....	.....
Lupton.....	.....	.....
LAWRENCE COUNTY.		
May	Ætna.....	Adkins.
.....	.....	Steed.
.....	.....	Dent.
.....	.....	John H. Johnson.
MAHONING COUNTY.		
Briar Hill.....	Witch Hazel.....	Watkins.
Beech Ridge .....	.....	National, south.
.....	.....	"A."
.....	.....	Dunn.
MEDINA COUNTY.		
Excelsior No. 2 .....	.....	Card Slope, No. 1.
Coleman Shaft .....	.....	High Bridge Glen.
MEIGS COUNTY.		
Enterprise.....	Zahl .....	.....
Priode	Antiquity .....	.....
Bear	Nye Farm.....	.....
MUSKINGUM COUNTY.		
Geo. Porter	Franklin.....	Brush Creek, No. 2.
Brush Creek No. 3.....	Cornell	Varner.
Jesse German.....	Isaac Sellars.....	Alexander.
Starkey.....	Theo. Deitz.....	R. W. Boggs.
Chestnut Valley.....	.....	Michael McNulty.
Wheeler.....	.....	.....
MONROE COUNTY.		
Gibbins.....	.....	.....
Bruce.....	.....	.....

DETAILED LIST OF MINES OPENED, ETC.—Continued.

New mines.	Suspended mines.	Abandoned mines.
	NOBLE COUNTY.	
Crawford.....	Macksburgh	Raccoon.
Beamer .....	.....	M. B. Hunter.
	PERRY COUNTY.	
Dickson, South Side.....	Nugent No. 6.....	Dickson No. 5.
Zanesville Coal Co.....	Elder & McGonagle.....	Do No. 3.
Taylor.....	O'Conner & Friel.....	Beech Grove No. 6, E.
Bristol.....	Nugent No. 3.....	Union, South Side.
.....	Furnace No. 2.....	Iron Point No. 1.
.....	No. 9.....	No. 11.
.....	No. 13.....	Ohio Central.
.....	No. 47.....	Daugherty.
.....	No. 49.....	Crooksville.
	PORTAGE COUNTY.	
Whip-poor-Will.....	.....	"B."
	STARK COUNTY.	
North Massillon.....	Orchard Hill.....	Holl.
Warwick.....	John Rickseeker.....	Kramer No. 1.
Bowen's.....	.....	.....
Reed No. 5.....	.....	.....
Reed No. 6.....	.....	.....
Canton Stoneware.....	.....	.....
Sion Hill.....	.....	.....
Sponseller No. 1.....	.....	.....
Sponseller No. 2.....	.....	.....
Yohe No. 1.....	.....	.....
Yohe No. 2.....	.....	.....
Kramer No. 2.....	.....	.....
Slimmer .....	.....	.....
Dolls .....	.....	.....
Jesse Miller.....	.....	.....
Meiser.....	.....	.....
Holl Bros.....	.....	.....
Davis No. 2.....	.....	.....
Brown's .....	.....	.....
Hassler .....	.....	.....
Lincoln.....	.....	.....
Rose Hill No. 2.....	.....	.....
Osnaburgh, New.....	.....	.....
	SUMMIT COUNTY.	
South End.....	.....	Summit Bank.
Farmers' Shaft.....	.....	.....
	TRUMBULL COUNTY.	
Foraker No. 2.....	Pinch Shaft.....	Jacobs No. 2.
Oak Hill.....	.....	Foraker No. 1.
.....	.....	Brookfield.
.....	.....	Peacock.

DETAILED LIST OF MINES OPENED, ETC.—Concluded.

New mines.	Suspended mines.	Abandoned mines.
TUSCARAWAS COUNTY.		
Briar Hill.....	Odberts No. 3.....	Mineral Ridge.
Somerdale, North Side....	Reeves Iron Co.....	Walton Ridge.
American Clay.....	Mrs. Catharine Ritson.....	Superior No. 5.
Hinley.....	.....	.....
Chandler .....	.....	.....
Irish Run .....	.....	.....
Pile.....	.....	.....
Jessie .....	.....	.....
Wilcoxen.....	.....	.....
VINTON COUNTY.		
Hanging Rock.....	O. F. Hawk .....	.....
Brown's .....	.....	.....
Hartley's .....	.....	.....
Hawks No. 2.....	.....	.....
Ohio & Nebraska.....	.....	.....
WASHINGTON COUNTY.		
.....	Felix	Sycamore.

INSPECTIONS OF MINES MADE DURING THE YEAR.

From the accompanying table it will be observed that during the year just closed the members of the department made 2,237 inspections, which is an increase of 612 as compared with the preceding year. This is mainly due to the increase in the inspecting members to seven, instead of five, as it existed prior to July 15, of the year previous. This permitted the curtailing of the territory over which each inspector has jurisdiction. It also reduced the number of mines placed in the care of each, thus permitting the inspections being made more frequently than when the districts were larger and contained a greater number of mines.

The greatest number of visits was made in the counties of Stark, Columbiana, Muskingum, Perry, Athens, Belmont, Jefferson, Tuscarawas and Jackson, in each of which the number exceeded 135.

Of the 1,009 mines in the state, 957 were in operation either the whole or a part of the year; of the latter, 321 were inspected once; 213, twice; 161, three times; eighty-five, four times; fifty, five times; thirty-two, six times; five, seven times; nine, eight times; five, nine times; two, eleven times; and one, ten; one, twelve; one, fourteen; and one, fifteen times.

The number of mines visited from four to nine times each was greatly in excess of the number returned during any year in the state's history.

The larger portion of the inspections was made prior to the month of July at which time the business depression became so intense as to

cause a total suspension of many of the large producing mines of the state.

Prolonged strikes occurred in several of the mining centers which affected the mines in whole districts, and during this period no inspections were made.

During the last half of the year the mining industry remained in such a state of chaos as to greatly retard the making of inspections in the usual systematic order.

From the second table it will be observed that the greatest number of inspections returned occurred in the 3d, 7th, 6th and 4th districts in the order named. These districts contain a greater number of small mines than the three remaining districts, and this class of mines was less affected than the large ones; also the labor of inspecting three small mines is about equal to that of one large mine which facts furnish a sufficient explanation for the increase.

TABLE SHOWING NUMBER OF VISITS MADE IN EACH COUNTY DURING THE YEAR.

Counties.	Number mines visited once.	Number mines visited twice.	Number mines visited three times.	Number mines visited four times.	Number mines visited five times.	Number mines visited six times.	Number mines visited seven times.	Number mines visited eight times.	Number mines visited nine times.	Number mines visited ten times.	Number mines visited eleven times.	Number mines visited twelve times.	Number mines visited fourteen times.	Number mines visited fifteen times.	Total number of visits made.
	1	2	3	4	5	6	7	8	9	10	11	12	14	15	Total.
Athens.....	24	15	7	5	3	3	.....	2	2	1	.....	.....	.....	.....	168
Belmont	15	25	15	9	1	1	.....	.....	.....	.....	.....	.....	.....	.....	157
Carroll	7	1	3	1	.....	1	.....	1	1	.....	.....	.....	.....	.....	47
Columbiana	3	1	5	7	9	12	.....	2	1	.....	.....	.....	.....	.....	208
Coshoctor	10	9	1	3	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	43
Gallia	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
Guernsey.....	15	5	3	5	4	2	.....	1	.....	.....	.....	.....	.....	.....	90
Harrison	7	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
Holmes	12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	12
Hocking	10	4	1	6	6	1	1	.....	.....	.....	.....	.....	.....	.....	88
Jackson	33	13	10	7	1	1	1	.....	.....	.....	.....	.....	.....	.....	135
Jefferson.....	20	20	8	3	3	1	.....	2	.....	.....	1	.....	.....	.....	144
Lawrence	23	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	27
Mahoning	4	4	10	1	1	3	1	.....	.....	.....	.....	.....	.....	.....	76
Medina	1	3	5	1	2	1	.....	.....	.....	.....	.....	.....	.....	.....	42
Meigs	7	8	2	.....	1	1	.....	.....	.....	.....	.....	.....	.....	.....	40
Morgan .....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
Monroe	6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Muskingum.....	11	29	34	6	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	200
Noble	22	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22
Perry	17	6	30	6	3	1	.....	.....	1	.....	.....	.....	.....	1	188
Portage	2	.....	.....	.....	3	.....	1	.....	.....	.....	.....	.....	.....	.....	24
Scioto	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	14
Stark	24	31	7	11	6	2	.....	1	.....	.....	.....	1	.....	.....	213
Summit.....	1	5	2	7	2	1	1	.....	.....	.....	.....	.....	.....	.....	68
Trumbull.....	6	1	2	2	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	27
Tuscarawas	19	19	9	4	2	.....	.....	.....	.....	.....	1	.....	1	.....	135
Vinton	7	3	3	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	28
Washington.....	.....	.....	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
Wayne.....	.....	.....	2	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
Totals.....	321	213	161	85	50	32	5	9	5	1	2	1	1	1	2,237

TABLE SHOWING THE NUMBER OF INSPECTIONS MADE DURING THE YEAR.

NUMBER OF VISITS MADE.

Name of inspector.	Number mines visited once.	Number mines visited twice.	Number mines visited three times.	Number mines visited four times.	Number mines visited five times.	Number mines visited six times.	Number mines visited seven times.	Number mines visited eight times.	Number mines visited nine times.	Number mines visited ten times.	Number mines visited eleven times.	Number mines visited twelve times.	Number mines visited fourteen times.	Number mines visited fifteen times.	
Chief Inspector	24	1	2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	32
Short	61	20	14	13	7	3	2	.....	.....	.....	.....	.....	.....	.....	262
Beattie.....	57	22	11	5	4	4	.....	2	2	1	.....	.....	.....	.....	242
Miller.....	47	36	63	12	4	1	.....	.....	1	.....	.....	.....	.....	1	406
Turner.....	49	38	19	17	5	3	.....	1	.....	.....	.....	.....	.....	.....	301
Love	26	31	13	9	4	3	.....	3	1	.....	1	.....	.....	.....	245
Jones	42	50	17	15	9	2	.....	1	.....	.....	1	1	1	.....	355
Lewis.....	15	15	22	14	17	16	3	2	1	.....	.....	.....	.....	.....	394
Totals	321	213	161	85	50	32	5	9	5	1	2	1	1	1	2,237

SCALES TESTED AND MINE CARS MEASURED.

The members of the department were called upon to test 120 sets of scales during the year, which is a number unprecedented in the history of the department. The greatest number heretofore tested in a year was eighty-six, which was returned during 1892.

Of the 120 sets of scales examined during the past year, eighty-one sets or 67½ per cent. were found to weigh accurately.

The records of the department show that during the last six years there have been 430 sets tested and that of this number 306 or 71 per cent. were found to be inaccurate. It will be seen that of the entire number tested 28 per cent. were examined during the year 1893. It will also be seen that the percentage of those found to be incorrect during the past year is 3½ per cent. greater than the average during the years of 1888 to 1893 inclusive.

Of the number found inaccurate during the year twelve were in favor of the operator and three were favorable to the miners. The returns do not indicate as to who were being benefited by the remaining sixty-six sets which were found to weigh inaccurately.

The scales tested were being used in eighteen of the mineral producing counties. The greatest number reported was in Jackson which is given as twenty-eight, of which twenty-one were found to be correct. This is followed by nineteen in Stark, of which fourteen were accurate. Belmont and Perry each report eleven, of which there were five in each that were found to be correct.

Although as a unit of measure in the marketing of coal the bushel is somewhat antique, it is quite generally used in some localities in the state.

During the year the department was requested to remeasure the cars in use at three of the principal mines in the Pomeroy district. This required five days of the inspector's time.

When the bushel as a unit of measure is applied to the mine cars it is quite liable to create dissatisfaction; as when the cars become worn the jar while in transit under a heavy load causes the sides to spring which results in their capacity being increased.

It has been found that the collecting and shipping of the test weights, the hauling of them to and from the mines added to the actual operation of testing the scales requires, on an average, one day's time. Thus it will be seen that in this branch of the service alone, that is, testing the scales and measuring the mine cars, 125 days were consumed which is equal to one inspector's work five-sevenths of the average time that the mines of the state were in operation during the year.

In order that all of the requirements of this branch of the public service may be met with dispatch, the department has provided seventy test weights of fifty pounds each, U. S. Standard. These are divided into sets of five each and located at railroad centers in such a way that there are two sets in each mining district.

Through some error in shipment during the latter part of Mr. David E. Evans' term as District Inspector, five weights were lost. The most diligent search during the last three years has failed to locate them and the inquiry is still being prosecuted with all the vigilance possible.

LIST OF SCALES TESTED AND MINE CARS MEASURED.

ATHENS COUNTY.

Coe Hill—Tested January 3; found correct.
 Hamley Run—Tested February 13; found correct.
 Springfield No. 2—Tested April 11; found correct.
 Hamley Run—Tested July 22; found correct.
 West Floodwood; Tested September 22; found correct.
 Greenbriar—Tested October 3; found in favor of the miners.
 Springfield No. 2—Tested October 7; found correct.
 No. 10—Tested October 28; found correct.
 Springfield No. 2—Tested November 6; found correct.

BELMONT COUNTY.

Pittsburg—Tested December 8, 1892; found incorrect. (Two sets tested.)
 Belmont No. 2—Tested December 8, 1892; found correct. (Three sets tested.)
 Standard—Tested March 2; found bound in construction.
 Pittsburg No. 1—Tested April 18; found correct.
 Pittsburg No. 2—Tested April 18; found correct.
 Glen—Tested July 13; found correct.
 Ætna—Standard—Tested October 31; found platform scales correct but the hopper scales were found in favor of the company.

CARROLL COUNTY.

Allen Shaft—Tested December 8, 1892; found correct.
No. 4—Tested May 31; found correct.
Allen Shaft—Tested June 19; found in favor of the company.
Allen Shaft—Tested August 1; found correct.
Elder—Tested August 2; found correct.
Allen Shaft—Tested November 13; found five pounds in favor of the company

COLUMBIANA COUNTY.

Central Slope—Tested December 22; found correct. (Two sets tested.)
Cherry Valley No. 2—Tested September 8; found correct.
Cherry Valley No. 3—Tested September 8; found a block under the woodwork.
Had it removed, after which they weighed correctly.

COSHOCOTON COUNTY.

Franklin—Tested May 25; found incorrect.
Franklin—Tested September 29; found correct.

GUERNSEY COUNTY.

Cisco—Tested April 17; found correct.
Cochran's—Tested July 15; found correct.
Nicholson—Tested October 10; one set found correct, but the other was obstructed with dirt.
Jumbo No. 2—Tested October 11; found the pea unloaded.
Mathews No. 2—Tested October 11; found correct.
Forsythe—Tested December 15; found correct.

HARRISON COUNTY.

Messenger—Tested October 23; found 60 pounds in favor of the company.

HOCKING COUNTY.

No. 19, North Hill—Tested February 17; found correct.
No. 29—Tested May 17; found correct.
Monday—Tested August 3; found twenty-five pounds light or heavy, according to where the weight would be placed in the box. The box was binding on the screen. After the friction was removed they weighed accurately.
Monday—Tested September 22; found in favor of the company.

JACKSON COUNTY.

Eliza—Tested November 25; found accurate.
Benton Slope—Tested November 25; found accurate.
Wellston No. 3—Tested November 25; found one set correct while the other one was found in favor of the company.
Milton—Tested December 8; found twenty-five pounds light and heavy on the same draft, due to the action of the wind on the weigh box. The local scales were found accurate.
Jackson Co. No. 1—Tested December 16; found accurate.
Hipples—Tested January 25; found accurate.
Coalton Coal Co. No. 3—Tested January 25; found correct.
Wellston No. 2—Tested February 9; found incorrect.
Superior No. 2—Tested March 20; found in favor of the company.
Superior No 2—Tested March 22; the scale on the O. S. side weighed correctly,

while those on the C., H. & D. side were found in favor of the company.

Buckeye No. 1—Tested June 6; found correct.

Hamley Run—Tested July 19; found correct.

Wainwright—Tested September 12; found slightly in favor of the company.

Comet—Tested October 18; found correct.

Ada No. 2—Tested October 18; found correct.

Milton—Tested October 20; found correct. (Two sets tested.)

Fluhart No. 1—Tested October 27; found correct.

Fluhart No. 2—Tested October 27; found correct.

Fluhart No. 3—Tested October 27; found correct.

Tom Corwin No. 2—Tested October 27; found correct.

Standard—Tested November 9; found those of the O. S. side correct, while those of the C., H. & D. side were slightly in favor of the company.

Glen Nell—Tested December 6; found correct.

Buckeye—Tested December 6; found correct.

JEFFERSON COUNTY.

Taylor—Tested April 14; found correct.

Bergholz—Tested May 24; found them incorrect; ordered them repaired.

Bergholz—Tested May 25; found correct.

Laurelton—Tested August 8; found incorrect.

Dillon No. 1—Tested August 9; found incorrect.

LAWRENCE COUNTY.

Lawrence—Tested June 21; found in favor of the company.

Old Mill—Tested June 21; found correct.

MEDINA COUNTY.

Excelsior Slope—Tested September 5; found correct.

MEIGS COUNTY.

Williams—Mine cars measured March 7, 8 and 9; found in favor of the company.

Rolling Mill—Mine cars measured April 20; found in favor of the company.

Minersville—Mine cars measured November 24; found in favor of the company.

MUSKINGUM COUNTY.

Diamond—Tested January 31; found correct.

Oak Grove—Tested January 31; found correct.

Lehigh—Tested March 3; found correct.

PERRY COUNTY.

Hemlock—Tested January 23; on the first trial with empty box they were found to be five pounds heavy; on the next three they were correct.

No. 5—Tested January 24; found correct.

Black Bird—Tested March 23; found slightly incorrect.

Furnace No. 2—Tested March 24; found them binding; removed the difficulty when they weighed correctly.

No. 21—Tested April 26; found them two pounds in favor of the miners.

Iron Pt. No. 2—Tested July 3; found correct.

Furnace No. 2—Tested September 16; found thirty pounds light; had them adjusted when they weighed correctly.

Hemlock—Tested September 23; found incorrect; had the difficulty removed when they weighed correctly.

Upson No. 1—Tested October 14; found correct.

No. 51—Tested October 24; found correct.

Rock Run No. 3—Tested October 25; found correct.

STARK COUNTY.

Pigeon Run—Tested December 13; found incorrect.

Osnaburgh—Tested December 30; found correct.

Anderson—Tested January 9; found correct after being repaired.

Upper Pigeon Run—Tested January 24; found correct.

Willow Spring—Tested March 11; found correct.

Wade—Tested March 13; found correct.

Miller—Tested March 22; found correct. (Three sets tested.)

Rose Hill—Tested May 26; found incorrect.

Millport No. 1—Tested June 27; found correct. (Two sets tested.)

Rose Hill—Tested June 30; found incorrect.

Clover Hill—Tested July 31; found correct after being repaired and cleaned.

Minglewood—Tested August 7; found correct.

West Massillon No. 2—Tested September 19; found correct.

Hern Brook—Tested September 23; found correct.

Forrest—Tested October 9; found correct.

Anderson—Tested October 17; found correct.

TUSCARAWAS COUNTY.

Tunnel Slope—Tested December 30; found correct.

Huff's Run—Tested February 2; found correct.

Goshen No. 1—Tested February 22; found correct.

Tunnel Slope—Tested April 17; found incorrect.

Gold Dust—Tested April 17; found correct.

WAYNE COUNTY.

Messenger—Tested March 31; found accurate. (Two sets tested).

PERMANENT IMPROVEMENTS MADE IN THE MINES OF THE STATE DURING THE YEAR.

The returns made by the District Inspectors for the year just closed, indicate that a greater number of permanent improvements have been made in the mines during 1893 than during any year in the state's history.

By the accompanying table it will be seen that the number is seventy per cent. in excess of that made during the year 1890, which number exceeded that of any year heretofore recorded.

It will be observed that these improvements amount in the aggregate to 354. They are itemized as follows: Seventy-seven new furnaces built; thirty-five fans installed; one hundred and thirty-one air shafts sunk; sixty-seven second openings or escapement ways provided, in which nineteen stairways were built. To the cages in shaft mines sixteen pairs of safety-catches were attached. For the better communica-

tion between employes at the top and bottom of the shaft mines five speaking tubes were constructed, and in improving the ventilation of the small mines of the state, four were provided with fire baskets.

As during 1890 no changes occurred in the inspecting force during the year. This permitted the district inspectors to carry on the work without interruption. Furthermore, the inspectors had become familiar with the needs of the mines in their respective districts, and so were enabled to more intelligently advise such improvements as were the most necessary and the greatest benefit to the miners. To these facts can the increase in improvements be justly attributable, and the result has been an elevated sanitary standard and an increased efficiency which has been a source of deep gratification to the department.

TABLE SHOWING THE NUMBER AND CHARACTER OF PERMANENT IMPROVEMENTS
MADE IN THE MINES OF THE STATE DURING THE INSPECTION YEAR.

Name of District Inspector.	Furnaces built.	Fans erected.	Air shafts sunk.	Second openings made.	Safety catches attached.	Stairways built.	Speaking tubes erected.	Ventilating baskets provided.	Total.
Short.....	7	9	10	11	3	1	1	.....	42
Beattie	6	3	8	5	.....	1	.....	3	26
Miller.....	10	2	33	13	.....	.....	.....	.....	58
Turner.....	6	5	15	16	5	6	2	1	56
Love	19	5	15	13	1	1	.....	.....	54
Jones.....	25	2	43	6	6	6	2	.....	90
Lewis	4	9	7	3	1	4	.....	.....	28
Totals.....	77	35	131	67	16	19	5	4	354

TABLE SHOWING THE NUMBER AND CHARACTER OF PERMANENT IMPROVEMENTS
MADE IN THE MINES OF THE STATE FROM 1884 TO 1893, INCLUSIVE.

Years.	Furnaces built.	Fans erected.	Air shafts sunk.	Second openings made.	Safety catches attached.	Stairways built.	Speaking tubes erected.	Ventilating baskets provided.	Total.
1884.....	43	10	.....	.....	.....	.....	.....	.....	53
1885.....	45	19	45	.....	13	.....	.....	.....	120
1886.....	13	6	22	10	.....	12	.....	.....	63
1887.....	39	9	50	7	.....	8	.....	.....	113
1888.....	43	4	52	17	13	12	.....	.....	141
1889.....	42	13	57	21	7	3	3	.....	146
1890.....	57	20	66	46	8	11	4	.....	212
1891.....	53	17	55	26	19	19	5	.....	194
1892.....	37	26	65	27	13	7	4	2	181
1893.....	77	35	131	67	16	19	5	4	354
Totals.....	449	159	543	221	89	91	21	6	1,577

MINES WHICH GENERATE LIGHT CARBURETTED HYDRO GEN GAS (C. H.₄).

The generating of this treacherous enemy to the miner has been found to occur in thirty-six mines of the state during the year that has just closed.

These mines are operated in nine of the coal producing counties. In Athens the former list has been increased by Daleton and Mine No. 24. In Belmont county, the Franklin and Wegee mines have disappeared and Wheeling Creek No. 1 has been added to the list. The largest increase of the year appears in Columbiana. This is owing to the recent developments of vein No. 3 near Leetonia and New Lisbon. Vein No. 3 as it is locally known is heavily charged with this dangerous gas, thus adding to the list Saratoga No. 2, Central Slope, Cherry Valley No. 3, Salem Drift and First National. The Farmer's mine near Salineville also appears for the first time in the list, while the Coleman Slope having been abandoned, is stricken therefrom.

In Guernsey county, Senecaville Shaft having been abandoned was dropped and the Robins, Cisco, Ohio Valley and Farmer's Shaft, were added during the year.

In Jefferson county the list has been increased by Bergholz, Taylor and Bustard Shaft.

Antiquity in Meigs county, Glenwood in Noble, Warwick in Stark and Hassen in Trumbull have been abandoned since the last list was published.

To the mines which generate C. H.₄ the department gives the strictest attention.

The volume of air is maintained at as nearly as possible twice that required by law. The false work is also given especial attention and the strictest discipline is maintained among the employees.

I am truly thankful in being able to report that notwithstanding the adverse conditions that surrounded the conducting of the mines, but two accidents occurred during the year which could be charged to this formidable agent. These were minor accidents in which two miners were slightly burned by an explosion.

MINES WHICH GENERATE CARBURETTED HYDROGEN GAS.

ATHENS COUNTY.		
Oakdale.....	Rend's No. 4.. ..	Courtright or No. 16.
Phoenix No. 1.....	Rend's No. 6.....	Crescent or No. 24.
Phoenix No. 2.....	Sunday Creek No. 10.....	Daleton.
BELMONT COUNTY.		
Captina.....	Wheeling Creek No. 1.....	Schnegg.
COLUMBIANA COUNTY.		
New Shaft	Saratoga No. 2.....	Salem Drift.
Old Shaft.....	Central Slope.....	First National.
Farmer's.....	Cherry Valley No. 3.....	.....
GUERNSEY COUNTY.		
Robins.....	Cisco	Ohio Valley.
Hartford.....	Trail Run.....	Farmer's Shaft.
JACKSON COUNTY.		
Wainwright.....	Fluhart No. 3.....	.....
JEFFERSON COUNTY.		
Brilliant	Taylor.....	Bustard.
Bergholz.....	High Shaft.....	.....
MAHONING COUNTY.		
Poland.....	Tippecanoe.....	.....
STARK COUNTY.		
Minglewood.....	.....	.....

VENTILATION.

Of a period of prosperity in the general lines of manufacturing, the mining interest enjoy a considerable portion. Throughout the first half of the year just closed the mines in the state were operated with the regularity that is usual during a time of activity in the various avenues of business. During this portion of the year the plan for distributing the columns of fresh air along the working places as adopted by the department during the early part of the writer's term, were reasonably well maintained, the hostility to the system among the mine managers wherever it existed having disappeared. The chief difficulty now met by the members of the department consists in maintaining in good order the doors and stoppings and thus preventing leakages of the air into the return air currents.

During the partial suspension of the mines which continued throughout the latter half of the year, there is no doubt but that the completion of many repairs and the erection of much necessary false work were prohibited; also that the maintaining in good repair of all the essential elements for health and safety was neglected. It is expected that upon the general resumption of mining the sanitary condition of the mines throughout the state generally will be found to have seriously retrograded from that of former years.

In the accompanying table the number and class of openings and method of ventilation is exhibited. From this it will be observed that there are 676 mines opened by means of a drift. In 112 the coal is reached by means of a shaft opening, and in sixty-one it is removed by means of a slope. There are 151 small mines which are located in isolated places and are operated in supplying local markets. Of these the department thus far has been unable to learn the character of development.

The latter class of mines are distributed over seventeen counties, the greatest number appearing in Tuscarawas and Stark.

The returns for the year show that in 141 mines the ventilation is provided by means of a fan. In 323 the current is maintained by the aid of a furnace, twenty-three use fire-baskets and in thirty-nine they rely on steam jets or utilize the exhaust steam from the mine pumps as a means of ventilation. There are 316 which depend upon the course of the winds (commonly known as natural ventilation) for their supply of fresh air.

Many of the latter class are small producers, the openings being made into veins lying near the summit of the hills and the entries have been driven through to the opposite crest. As they are only in operation during the fall and winter months and rarely, if ever, employ to exceed eight or ten miners, the department deemed the volume of air in circulation as sufficient.

Distributed over twenty counties of the state are 167 small mines, many of which are operated but a short time each year. But few have

been found in operation by the inspectors, hence have not been examined. Others are located in unfrequented ravines or in isolated places remote from railroad stations and have been overlooked by the inspectors when in the vicinity, hence their mode of ventilation remains unrecorded by the department.

From the table it will be observed that 526 mines, that is 52 per cent. of the state's list, are provided with artificial means of ventilation. This number is 107 in excess of the number of large mines in the state, that is of those which employ to exceed ten miners.

TABLE EXHIBITING THE CHARACTER OF THE OPENING, AND METHOD OF VENTILATING THE MINES OF THE STATE.

Counties.	Plan of opening.					Mode of ventilation.						Total.
	Drift.	Shaft.	Slope.	Small mines. Kind of opening not known.	Total.	Fan.	Furnace.	Fire basket.	Steam jet and exhaust from pumps.	Natural.	Small mines. Mode not known.	
Athens	44	13	2	1	60	22	22	.....	.....	14	2	60
Belmont	70	2	9	.....	81	4	41	2	2	32	.....	81
Carroll	15	1	1	1	18	2	8	.....	.....	7	1	18
Columbiana.....	34	6	5	18	63	12	20	.....	3	9	19	63
Coshocton.....	23	.....	.....	.....	23	.....	12	2	.....	7	2	23
Gallia.....	1	.....	.....	3	4	.....	1	.....	.....	.....	3	4
Guernsey	13	7	3	.....	23	8	8	1	2	4	.....	23
Harrison.....	12	1	.....	.....	13	.....	3	1	.....	9	.....	13
Holmes.....	17	.....	.....	.....	17	.....	2	.....	.....	15	.....	17
Hocking.....	29	.....	1	.....	30	12	9	.....	1	8	.....	30
Jackson.....	33	28	10	9	80	40	24	.....	.....	7	9	80
Jefferson.....	28	8	2	4	42	8	12	.....	3	15	4	42
Lawrence	31	.....	.....	.....	31	.....	4	.....	.....	27	.....	31
Mahoning.....	8	6	4	11	29	4	13	.....	2	.....	10	29
Medina.....	1	2	6	4	13	2	1	.....	5	.....	5	13
Meigs	23	2	1	.....	26	.....	14	.....	.....	10	2	26
Morgan.....	1	.....	.....	.....	1	.....	.....	.....	.....	1	.....	1
Monroe.....	3	2	.....	.....	5	.....	2	.....	.....	3	.....	5
Muskingum.....	84	.....	.....	13	97	.....	22	6	.....	52	17	97
Noble.....	20	.....	.....	2	22	.....	1	.....	.....	18	3	22
Perry	52	4	2	15	73	10	17	11	.....	18	17	73
Portage.....	.....	4	.....	2	6	4	.....	.....	.....	.....	2	6
Scioto.....	5	.....	.....	.....	5	.....	.....	.....	.....	5	.....	5
Stark	54	20	1	24	99	8	38	.....	10	19	24	99
Summit.....	.....	5	8	.....	13	.....	4	.....	6	2	1	13
Trumbull	1	5	3	6	15	.....	4	.....	4	.....	7	15
Tuscarawas	62	.....	1	28	91	2	34	.....	.....	26	29	91
Vinton	12	2	.....	7	21	2	5	.....	.....	7	7	21
Washington .....	.....	.....	2	.....	2	.....	2	.....	.....	.....	.....	2
Wayne.....	.....	3	.....	3	6	1	.....	.....	1	1	3	6
Totals.	676	121	61	151	1,009	141	323	23	39	316	167	1,009

POWDER CONSUMED IN THE MINES.

The health of mine employes is constantly menaced by the evil effects which result from the inhaling of powder smoke.

In carrying on the work of developing the mines and in blasting down the coal, large quantities of coarse powder are consumed daily. The smoke which arises from the discharging of shots generate carbonic oxide (white damp) which is carried in the air currents to the men who are at work in its path. The baneful effects which result from the inhaling of this deadly poison would in a great measure be diminished if the firing of shots was confined to certain hours. That is, in the districts where the mining is conducted in the thin veins of the series, the shooting should at least be restricted to twice during the day. The first period should be at the noon hour when the drivers and day-hands are at dinner and the miners can retire into the currents of fresh air while the smoke is being swept away. The second period should be on the completion of the day's work when all will avoid its presence.

In the thicker veins where it requires less shooting to maintain the turn and wherever else practicable, blasting should only be done at the close of the day's work. By this system the evil consequences which result from inhaling this deadly poison would in a great measure be avoided.

Numerous efforts have been made to establish stipulated hours for the discharging of blasts in the mines. This has been partially successful in some localities, but it has fallen far short of that universality which was expected when the matter was taken up by the department.

In the northern fields of the state and in a few localities of the southern portion, the rule of shooting but once a day is still adhered to as in former years.

With a view of determining the quantity of powder that was consumed in the large mines of the state during the year, circulars in which the keg containing twenty-five pounds was designated as the unit of measure, were inclosed with the general statistic blanks.

Responses giving the amount were returned by 415 persons or firms who operate mines distributed over thirty counties in the state. From a compilation of these it is found that in the mines represented by the above firms there were consumed 170,044 kegs of powder or 4,252,100 pounds. It is also shown that they produced 10,953,288 tons of coal. This indicates an average production of sixty-four and four-tenths tons to each keg of powder consumed, being an increase of one and nine-tenths tons, as compared with the return made during the preceding year.

There is no doubt but that considerable powder was consumed in these mines which was purchased from outside dealers of which no returns have been made. To this extent the returns indicate a larger production of coal to the amount of powder consumed than is actually true.

It has been found quite a difficult matter to secure a correct return of the entire amount of powder consumed in the mines of the state. This is caused by the local dealers who sell powder to the miners and in addition supply stone and lime quarries, contractors on public works, etc. They usually keep no records of the amount sold and in some instances are unable to make an accurate report of the quantity of powder they have handled during the year. Again, they keep no record as to what mines the powder which they have sold was delivered. In this way many kegs of powder find their way into the mines which make no returns as to the amount they have consumed during the year. This is more particularly the case about Bellaire and Bridgeport in Belmont county, where the larger portion of the powder consumed is sold by local dealers.

It is quite probable that some was used in mines where the operator also furnished his miners. To this extent the quantity returned by the operators in these vicinities will be misleading, and this supply from the independent dealers may prevail in a measure in some of the other counties. On the whole, it has been found that by confining the inquiry to the operators who made returns the most reliable basis for calculations is obtained.

Of the prominent coal producing counties of the state, Belmont returns the largest production to the keg of powder consumed. This is followed by Mahoning, Jefferson, Guernsey, Columbiana, Hocking and Coshocton, in all of which the returns indicate an output of over one hundred tons to the keg. The smallest production to the keg of powder consumed occurs in Summit, Medina, Stark, Lawrence, Jackson, Portage and Trumbull where the amount mined was below fifty tons. In Muskingum, Carroll, Meigs, Tuscarawas, Perry and Athens the amount produced was below one hundred and in excess of fifty tons.

The following table will be found to exhibit the number of firms who reported in each county, the amount of coal which they mined, also the number of kegs of powder consumed and the number of tons mined to the keg :

TABLE EXHIBITING THE NUMBER OF KEGS OF POWDER CONSUMED AND THE NUMBER OF TONS PRODUCED TO EACH KEG.

Counties.	Number of firms who reported.	Number of firms who did not report.	Tons mined by the firms who reported.	Number kegs reported as used.	Number of tons mined to keg of powder used.
Athens.....	21	12	1,033,740	11,236	92
Belmont.....	29	47	754,254	3,481	213
Carroll.....	8	7	106,075	1,642	64
Co umbiana.....	28	20	523,600	4,211	124
Coshocton.....	6	12	197,887	1,707	116
Ga lia.....	3	1	5,256	66	80
Guernsey.....	12	8	332,466	2,598	128
Harrison.....	7	5	12,108	210	58
Holmes.....	9	4	9,279	70	132
Hocking.....	12	4	994,636	8,014	124
Jackson.....	42	46	1,690,225	46,979	36
Jefferson.....	12	24	992,826	6,675	149
Lawrence.....	8	12	63,047	1,674	32
Mahoning.....	12	16	101,008	586	172
Medina.....	8	1	138,617	4,616	30
Meigs.....	18	3	215,755	3,203	67
Morgan.....	1	.....	14,500	300	48
Monroe.....	2	3	4,200	24	175
Mu-kingum.....	15	58	197,787	3,635	54
Noble.....	6	15	6,593	71	93
Perry.....	29	16	1,725,273	22,892	75
Portage.....	3	.....	94,586	2,250	42
Scioto.....	1	.....	769	25	31
Stark.....	44	34	769,745	24,967	31
Summit.....	11	1	96,018	4,272	22
Trumbull.....	5	9	18,177	370	49
Tuscarawas.....	43	23	713,841	10,187	70
Vinton.....	11	7	74,050	1,300	57
Washington.....	2	.....	1,936	34	57
Wayne.....	7	.....	64,934	2,789	23
Totals and average.....	415	388	10,953,288	170,084	64.4

OIL USED FOR ILLUMINATING PURPOSES IN THE MINES.

During the forepart of the year the quality of miners' lamp oil was fairly well maintained at the lawful standard of twenty-four degrees gravity, Tagliabue, and little or no complaint as to an increase in the amount of adulteration was received until after the mines began to be worked on short time. The irregularity in operating the mines resulted in a corresponding lack of opportunity to make frequent tests of the oil at the several distributing centers of supply.

The oil dealers, who are ever on the alert to the situation, soon began to increase the quantity of adulterant used in compounding and with this began the "cutting of prices," as it is termed in the trade. The result has been that at the close of the calendar year there were large quantities of highly adulterated oil on the market unsuitable for use in the mines.

The irregularity with which the mines were operated made it very difficult for the inspectors to be present while they were in operation, hence the inspectors were not in a position to notice the increase in the volume of smoke that arose from the miners' lamps. Again, there was a less quantity of oil consumed and as the monthly consignments were received by the dealers, the quantity on hand was constantly accumulating so that with the revival of the coal trade the department will be met with a quality of oil, which for vitiating the air in the mines, in all probability never will be equaled.

It is believed that much of this oil was purchased on long time deliveries and at prices which were established on a basis of Ohio legal test. Hence, by filling the orders with an oil carrying an increased quantity of cheap neutral oil, it would yield to the compounder a very handsome profit.

It must be remembered that the miner in using cheap oil receives no share of the profit, as the price to him remains the same the year around. At the same time he never fails to receive his full share of the injury which results from inhaling the poisonous fumes which arise from the burning of it in the narrow confines of the mine.

The experience of the department during the time which has elapsed since the passage of the oil law (Sec. 306) has developed several new features which require an additional guarding. It has also developed that the provisions of the law must be more specific and in order to make the law productive of the desired results, the writer, with the assistance of the attorney-general, drew up an amended law. This was presented to the 71st General Assembly by the Hon. John Thomas, the member from Stark county, to whose energy the department is indebted for its enactment on April 19, 1894. A copy of this will be found embodied in this chapter.

It is hoped and believed that for the coming year the writer will be able to report that the quality of miners' oil is superior to that of any which has been used during the last decade.

DEPARTMENT OF MINES AND MINING, STATE OF OHIO.

All persons who deal in, or use miners' lamp oil in any mines of the state will take notice of the passage of the following law entitled:

[House Bill No. 559.]

AN ACT

To amend section 306 of the Revised Statutes, as amended March 29, 1892.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio, That* section 306 of the Revised Statutes be so amended as to read as follows:

Sec. 306. Only a pure animal or vegetable oil, or other oil as free from smoke as a pure animal or vegetable oil, and not the product or by-product of rosin, and which shall, on inspection, comply with the following test, shall be used for illuminating purposes in the mines of this state: All such oil must be tested at 60 degrees Fahrenheit. The specific gravity of the oil must not exceed 24 degrees Tagliabue. The test of the oil must be made in a glass jar one and five-tenths inches in diameter by seven inches in depth. If the oil to be tested is below 45 degrees Fahrenheit in temperature, it must be heated until it reaches about 80 degrees Fahrenheit; and should the oil be above 45 degrees and below 60 degrees Fahrenheit, it must be raised to a temperature of about 70 degrees Fahrenheit, when, after being well shaken, it should be allowed to cool gradually to a temperature of 60 degrees Fahrenheit, before finally being tested. In testing the gravity of the oil, the Tagliabue hydrometer must be, when possible, read from below, and the last line which appears under the surface of the oil shall be regarded as the true reading. In case the oil under test should be opaque or turbid, one-half of the capillary attraction shall be deemed and taken to be the true reading. Where the oil is tested under difficult circumstances, an allowance of one-half degree may be made for possible error in parallax before condemning the oil for use in the mine. All oil sold to be used for illuminating purposes in the mines of this state, shall be contained in barrels or packages branded conspicuously with the name of the dealer, the specific gravity of the oil, and the date of shipment.

SECTION 2. That section 306 be supplemented by the enactment of the following section, numbered as indicated:

Sec. 306a. Any person or persons, firm or corporation which ships any oil contained in any barrel or barrels, package or packages, which are not branded as prescribed in section 306, said oil to be used for illuminating purposes in coal or other mines, and any person or persons, firm or corporation which sells any oil other than that prescribed in section 306, to be used for illuminating purposes in coal or other mines, and any person or persons, firm or corporation having in charge the operation or running of any mine, which, in a mine under his or its charge, uses or permits the use of any oil other than that prescribed in section 306, and any miner or mine employe who uses, with a knowledge of its character, in any mine of this state, any oil other than that prescribed in section 306, shall be fined not less than five nor more than fifty dollars; and any individual, firm, company or corporation which sells any oil other than that prescribed in section 306, in a quantity exceeding five barrels at one sale, to be used for illuminating purposes in coal or other mines, shall be fined not less than twenty-five nor more than one hundred dollars. Mayors and justices of the peace shall have jurisdiction to try any violations of this section, and their judgment shall be final. Every person who, after being once convicted of violating this section, shall be convicted of again violating any of the provisions of this section, may, in addition to the fine before provided, be imprisoned not less than ten days nor more than thirty days. On complaint, before a mayor or justice of the peace, of a second violation of this act involving the punishment of imprisonment, if a trial by the jury be not waived, a jury shall be chosen and the case tried, after the manner provided in section 3718a of the Revised Statutes. All fines assessed and collected under prosecutions begun, or caused to be begun by the chief inspector of mines, or any district inspector of mines, shall be paid by the court to the chief inspector of mines, and by him paid into the state treasury to the credit of a fund which is hereby appropriated for the use of the chief inspector of mines in prosecuting violations of this section. Any excess of fines collected over the expenses incurred in prosecutions under this section remaining at the close of the fiscal year, shall be credited to the general revenue fund of the state.

SECTION 3. Section 306, as amended March 29, 1892 (89 O. L., 164), is hereby repealed, and this act shall take effect and be in force from and after its passage.

ALEX. BOXWELL,
Speaker of the House of Representatives.

ANDREW L. HARRIS,
President of the Senate.

Passed April 19, 1894.

UNITED STATES OF AMERICA, OHIO, }
OFFICE OF THE SECRETARY OF STATE.

I, SAMUEL M. TAYLOR, Secretary of State of the State of Ohio, do hereby certify that the foregoing is an exemplified copy, carefully compared by me with the original rolls now on file in this office, and in my official custody as Secretary of State as required by the laws of the State of Ohio, of an act passed by the General Assembly of the State of Ohio, on the 19th day of April, A. D. 1894.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name, and affixed my Official Seal, at Columbus, the 30th day of April, A. D. 1894.

SAMUEL M. TAYLOR,
Secretary of State.

[SEAL.]

REPORT OF THE FIRE CLAY INDUSTRY DURING THE YEAR 1893.

The ability of clay to withstand the effects of excessive heat, or to resist all injurious effects which result from contact with fire, has ceased to mark the distinguishing line of the various clays embraced in the clay industry of the state.

The term fire clay is applied to all beds of clay, with the exception of those from where the common red building brick and ordinary drain tile are manufactured. Thus, fire clay has become the commonly accepted term for all the clay beds which underlie the several coal veins as well as for the beds of shale which are not immediately connected with the coal measures. This was, no doubt, well known to the legislature when it amended the mining law whereby the industry was made a part of the cares of the department. In view of this fact the statistics embodied in this chapter have been compiled to exhibit the production of the clays which were considered by the members of the 68th General Assembly.

As will be seen by the second table, the fire clay industry, within recent years, has made rapid advancement.

The superiority of our clays, as well as the wares into which they are manufactured, has created such a demand in our own and in the sister states as to place the industry second in mining importance in the state.

Returns were received from seventeen counties, Noble appearing in the list for the first time, and Trumbull, hitherto a producing county, has withdrawn from the column.

The footings of the table clearly indicate that the industry has greatly suffered from the industrial depression. Comparing them with

those of the preceding year, it is seen that in but five counties was there an increase in the time worked, the greatest occurring in Perry, Lawrence and Noble. There was a decrease in thirteen counties, the largest occurring in Trumbull, in which, during 1892, the average time worked was thirty weeks. This is followed by a loss of fifteen weeks in Belmont. The totals show that in each county there has been an average loss of $2\frac{3}{10}$ weeks in the time worked.

In the number of miners employed there appears a loss of forty-nine, and in the number of hands engaged in the manufacture, the decrease is given as 135. The greatest numbers appear in Columbiana, Scioto, Athens, Lawrence and Perry counties.

In the production of fire clay there was a decrease of 220,762 tons. The losses appear in nine counties, of which Jefferson, Summit and Athens are the most prominent.

The year just closed is the second since the industry has been attached to the cares of the department, that a loss in the annual production has occurred. The first was during the year 1885. From that date to the past year there has been an average annual increase in the production of 177,327 tons. During the three preceding years this average increase increased to 226,327 tons.

In the column under "fire clay purchased for manufacturing purposes," the table shows that but Muskingum, Scioto and Summit made returns as compared with the seven counties during the preceding year. The decrease for the year under this classification amounts to 20,051 tons.

The year's clay production is given at 1,032,348 tons, the number of miners employed at 626, and the average time worked at 202 days, from which it will be seen that each miner produced eight tons and 310 pounds each day during which he was employed. The returns further show that there were 3,616 hands engaged in the manufacturing of various kinds of ware. This indicates that each person used 289 tons of clay during the year. By comparing this with former years, it will be found that during 1888 the amount to each hand equaled 281 tons, that during 1889 it was increased to 304 tons; in 1890 it was still further increased to 310 tons; in 1891 it decreased to 283 tons, and in 1892 it amounted to 334 tons. Aside from the difference in the time worked, it is believed that these fluctuations in quantity can justly be attributed to the character of the wares manufactured during the year.

Notwithstanding the year's decrease in the production, the value of our beds of clay and the superiority of the wares which are manufactured therefrom, have been fully established.

It is believed that on the revival of the manufacturing interests of the country, the clay working will be further developed, and that it will again challenge the coal industry for the first position in the mining industries of the state.

TABLE EXHIBITING THE FIRE CLAY OUTPUT OF THE STATE DURING THE YEAR OF 1893 AS COMPARED WITH THAT OF 1892.

Counties.	1892.						1893.						Employees.				Output.	
	Number of weeks worked.	Number miners employed.	Number of hands engaged in the manufacture.	Number of tons mined.	Number of tons purchased for manufacturing wares.		Number of weeks worked.	Number miners employed.	Number of hands engaged in the manufacture.	Number of tons mined.	Number of tons purchased for manufacturing wares.		Gain in miners.	Loss in miners.	Gain in hands employed in the manufacture.	Loss in hands employed in the manufacture.	Gain in tons mined.	Loss in tons mined.
Athens.....	49	22	164	57,456	.....		46	20	130	30,390	.....		.....	.....	.....	.....	.....	27,066
Belmont.....	31	12	53	9,252	.....		16	3	35	2,000	.....		.....	9	.....	.....	.....	7,252
Carroll.....	33	25	101	30,234	.....		27	20	70	27,320	.....		.....	5	.....	.....	.....	2,914
Columbiana.....	36	100	592	193,209	70		34	81	525	203,580	.....		.....	19	.....	.....	10,371	.....
Hocking.....	45	37	175	65,849	.....		40	27	150	50,580	.....		.....	10	.....	.....	.....	15,269
Holmes.....	36	2	13	4,000	.....		40	2	10	7,000	.....		.....	.....	.....	.....	.....	.....
Jackson.....	40	8	61	5,100	7,794		43	12	37	11,353	.....		4	.....	.....	3,001	.....	.....
Jefferson.....	44	89	571	320,710	2,000		42	97	574	173,841	.....		8	.....	3	.....	6,253	.....
Lawrence.....	25	27	50	27,197	.....		39	35	17	31,170	.....		8	.....	.....	.....	.....	146,819
Mahoning.....	29	8	28	7,470	.....		24	9	31	8,533	.....		1	.....	3	.....	3,973	.....
Muskingum.....	38	60	457	96,735	8,035		30	73	543	86,016	6,000		13	.....	56	.....	1,063	.....
Noble.....	.....	.....	.....	.....	.....		10	1	.....	311	.....		1	.....	.....	.....	311	.....
Perry.....	26	8	48	14,169	1,241		42	2	16	689	.....		.....	6	.....	.....	.....	13,480
Scioto.....	25	49	166	17,605	11,405		22	25	104	24,582	6,767		.....	24	.....	62	6,977	.....
Stark.....	40	68	303	140,745	.....		37	85	429	147,775	.....		.....	.....	126	.....	7,030	.....
Summit.....	44	82	484	178,116	2,920		41	46	489	103,920	1,277		17	36	4	.....	.....	74,196
Trumbull.....	30	2	.....	200	.....		.....	.....	.....	.....	.....		.....	2	.....	.....	.....	200
Tuscarawas.....	43	76	455	85,063	.....		40	88	457	123,288	.....		12	.....	2	.....	38,225	.....
Totals.....	36	675	3,751	1,533,110	34,095		33 7-10	626	3,616	1,032,348	14,044		64	113	194	329	77,203	297,965

Loss in number of miners employed 49.
Loss in number of day hands employed, 135.
Loss in number of tons mined, 220,762.
Loss in number of tons purchased, 20,051

TABLE GIVING THE FIRE CLAY PRODUCTION OF THE STATE FROM DECEMBER 31, 1883, TO DECEMBER 31, 1893, INCLUSIVE.

Years.	Tons.	Gain.	Loss.
1884.....	168,208	.....	.....
1885.....	153,756	.....	14,452
1886.....	266,709	112,953	.....
1887.....	366,476	99,767	.....
1888.....	471,794	105,313	.....
1889.....	574,129	102,335	.....
1890.....	833,159	259,030	.....
1891.....	1,087,560	254,401	.....
1892.....	1,253,110	165,550	.....
1893.....	1,032,348	.....	220,762

PRODUCTION OF IRON ORE IN THE STATE DURING THE YEAR OF 1893.

The returns from the iron ore mines of the state show a decrease of 21,462 tons as compared with the year of 1892. The total tonnage is 68,220 tons, which is the lowest of any year during which the department has kept a record with the exception of 1891, when it dropped to 67,984 tons.

The decrease in the year's iron ore production has by no means been confined to Ohio, as the advance sheets of the "U. S. Division of Mining Statistics and Technology," sent out by Mr. David T. Day, chief of the division, show that in no year since 1887 has the production been so small as during 1893.

The decrease in the U. S. amounted to 4,709,037 tons or twenty-eight and nine-tenths per cent. In the Lake Superior region, he says, the decrease amounted to thirty-three and one-third per cent. The production in the state of Michigan is the lowest in the five years, and in Alabama the lowest in four years, and in New York the out-put is said to be scarcely three-fifths of that of 1892. In his report he comments extensively on the decline in the prices, which feature is not considered by the department of Ohio.

Returning to the statistics of Ohio, it will be found from the accompanying table that a decrease in production has appeared annually since 1887. During that year the greatest tonnage of which we have a record was returned, but during the past three years it has fallen below the hundred thousand ton mark.

When the writer assumed the charge of the department in 1888. iron ore was mined in twelve counties of the state. Hocking, Stark and Columbiana have reported but one year since. In 1890 Trumbull dropped from the list and Perry, Gallia and Vinton have failed to make returns for the year just closed. Thus the list has been reduced to the five

counties that appear in the table, all of which have continued to produce each year during which the department has kept a record.

The only gain reported during the year is in Scioto county; losses appear in the others, the greatest occurring in Lawrence and Jackson. In the former the native ores are used in making charcoal iron, while in the latter a quality of stone coal iron is made which is particularly valuable on being melted in conjunction with strong iron as a softener. This is used in certain kinds of foundry work.

The year's decrease in these counties is no doubt attributable to the blowing out of the furnaces in the Hanging Rock region and of one in the Jackson district.

During the last three years ninety per cent. of the state's output has consisted of hematites mined in the counties of Lawrence, Jackson, Vinton, Scioto and Gallia. A majority of this has been converted into charcoal iron. The records of the department show that the black band ore formerly extensively mined in Trumbull, Mahoning, Stark and Tuscarawas counties in the northern portion of the state, and in Lawrence and Vinton in the southern, attained its maximum production during 1887, when the output amounted to 87,965 tons. The production has gradually diminished, until during the past year but 3,837 tons are reported as mined, all which was produced in Mahoning and Tuscarawas counties.

This variety of ore is almost exclusively used in connection with the rich ores from Lake Superior regions in the production of American-Scotch pig iron, which for many years was in great demand in the iron markets of the country.

The falling off in the iron ore production of the state can be attributed to several causes. Prominent among these is the change in the iron market by which there has arisen a demand for grades of iron to which our ores are not particularly adapted. Again, the small margin of profit in pig iron during recent years has induced the furnace men to rebuild their furnaces whereby they have increased their size and capacity, thus enabling them by the use of the richer ores to treble the production of former years. As another cause, may be mentioned the continual development of rich beds of iron ore in the northwest, the character of the deposits being such that with the use of new and improved machinery they are enabled to mine it at trifling cost as compared with their earlier developments. Then the lake vessels that are engaged in carrying coal to these ports on returning bring it to the lower lake ports at a rate that enables the iron manufacturers to supply their furnaces with ore at a price which precludes the Ohio miner from making living wages, thus practically closing our mines.

TABLE SHOWING THE PRODUCTION OF IRON ORE BY COUNTIES DURING THE YEARS OF 1892 AND 1893, ALSO A COMPARISON OF THE GAIN AND LOSS IN EACH COUNTY.

Counties.	1892.		1893.		1893.	
	Black-band.	Hem-atite.	Black-band.	Hem-atite.	Loss.	Gain.
Gallia.....		68			68	
Jackson		16,813		9,816	6,997	
Lawrence... ..		51,126		38,077	13,049	
Mahoning.....	344		109		235	
Scioto.....		9,035		16,530		7,495
Tuscarawas	8,336		3,728		4,608	
Vinton		4,000			4,000	
Totals.....	8,680	81,042	3,837	64,423	28,957	7,495
Totals.....	89,722		68,260		Net loss, 21,462	

TABLE GIVING THE IRON ORE PRODUCTION OF THE STATE FROM DECEMBER 31, 1883, TO DECEMBER 31, 1893, INCLUSIVE.

Years.	Black band ore.			Hematite.			Total.
	Tons.	Loss.	Gain.	Tons.	Loss.	Gain.	
1884.....							276,286
1885.....	70,935			188,646			259,581
1886.....	83,947		13,012	260,537		71,891	344,484
1887.....	87,965		4,018	289,500		28,963	377,465
1888.....	82,054	5,911		171,298	118,202		253,352
1889.....	70,398	11,656		182,011		10,713	252,409
1890.....	41,848	28,550		127,240	44,058		169,088
1891.....	15,540	26,308		52,444	74,796		67,984
1892.....	8,680	6,860		81,042		28,598	89,722
1893.....	3,837	4,843		64,423	16,619		68,220
Totals.....	465,204	84,128	17,030	1,417,141	253,675	140,165	2,158,591

THE YEAR'S PRODUCTION OF LIMESTONE.

The returns for the year just closed show a decided diminution in the limestone industry of the state.

This condition should not be construed as an exhaustion of the state's resources, but more properly as another evidence of the prolonged business depression which has permeated the various avenues of trade.

Returns were received from thirty-eight of the lime producing counties of the state; two, Hocking and Jackson dropping for a time from the list of limestone producers.

In point of production and taking into account the various classifications as they appear in the accompanying tables, Erie county easily assumes the lead. As other extensive producers, may be named Allen, Clark, Greene, Hamilton, Marion, Miami, Ottawa and Sandusky.

With regard to the time worked, the general average is found to have been twenty-seven weeks, which is a gain over the year of 1892 of four and two-thirds weeks. In the number of men employed in the industry, the returns show a considerable loss. The most prominent counties in this connection are Franklin, Hamilton and Ottawa. The total number of employes for 1893 was 2,928, a loss over the preceding year of 425.

Of the nine classifications under which limestone is marketed, small gains appear in three, while the other six indicate heavy losses.

Under the heading "stone burned for lime," reports were received from twenty-eight counties, twelve of which return gains and sixteen losses. Logan county's production being identical for the two years. The greatest gain of 11,738 tons, appears in Hancock, and the largest loss, 168,726 tons, occurs in Ottawa. The total production for the year was 396,690 tons, a loss over the preceding year of 234,359 tons.

Under the returns of "stone used for fluxing," thirteen counties report a production of 108,376 tons. The counties of Ottawa, Lucas, Jackson and Hocking, although producing in 1892, did not make any returns under this classification during 1893. These together with four others, report a loss amounting to 116,941 tons. The remaining thirteen counties show a gain of 7,336 tons, making an aggregate loss of 109,605 tons.

With respect to "dimension stone," eighteen counties report a production of 748,712 cubic feet. Of these, nine report a total gain of 92,787 cubic feet, and nine a loss of 401,232 cubic feet, while Wood county, a producer in 1892, fails to report any as marketed under this classification. The greatest gains appear in Franklin and Montgomery counties, and the heaviest losses in Erie, Marion and Miami, where the aggregate loss as compared with the year 1892 is 308,445 cubic feet.

Under the next classification, that of limestone used for "piers and protection purposes," eighteen counties make returns. Of these ten report gains and eight losses. Four counties, Hardin, Highland, Muskingum and Seneca have dropped from the list, having produced no lime-

stone of this kind since 1892. Erie county shows a gain of 36,426 cubic yards, which exceeds considerably the total gain of all the other nine counties; while Franklin county shows a loss of 21,919 cubic yards, which exceeds the total loss of the other twelve counties which report losses. The total production under this classification in 1893 was 57,375 cubic yards, which exceeds the production of the preceding year by 9,273 cubic yards.

The returns of limestone used for "Flagging" also indicate a small gain. The amount of stone produced in this form was 226,654 square feet, which exceeds that of 1892 by 55,087 square feet. This was produced in sixteen counties, seven of which show gains and eight losses. Holmes and Sandusky counties did not quarry any stone of this character during 1893, while Ottawa appears for the first time in this column. Considerable gains occurred in Allen and Preble counties, the former producing 95,000 square feet, and the latter 79,191 square feet.

Under "paving," a heavy loss appears. In 1892 the Kelly Island Lime and Transportation Company reported a production of 2,474,752 square feet of paving, while in 1893 they make no returns under this heading. This will account for the immense loss which occurs under this classification. This company owns kilns and quarries at Marblehead, Ottawa county, which output was not obtainable. Sixteen counties report under this heading, Clermont, Holmes and Marion having become non-producers since 1892. Clark and Miami counties show heavy losses, which added to that of Erie amounts to 2,489,325 square feet.

With respect to "curbing" fifteen counties, make returns showing an aggregate gain of 107,507 lineal feet over the output of 1892. Erie county, which was a non-producer in 1892, reports having quarried 22,000 feet in 1893, while Holmes and Putnam make no returns for the year.

Under "ballast and macadam," there appears a production of 754,142 cubic yards. Although this was exceeded in 1892 by 7,642 cubic yards, it is the largest output of any of the classifications. These returns come from twenty-seven counties, fourteen of which return a gain of 185,902 cubic yards and seventeen a loss of 193,544 cubic yards, showing the aggregate loss to have been 7,642 cubic yards. The largest gains appear in Allen, Erie and Van Wert counties and the greatest losses in Franklin, Hamilton and Marion, while Butler, Logan and Lawrence counties make no returns of production for the year.

PRODUCTION OF LIMESTONE IN OHIO—Concluded.

Counties.	Average number of weeks worked.	Number of men employed	Number of tons of 2,000 pounds each burned for lime.	Number of tons of 2,000 pounds each burned for fluxing.	Cubic feet of dimension stone.	Cubic yards of ordinary building stone.	Cubic yards for tiers and projection purposes.	Square feet of flagging.	Square feet of paving.	Lineal feet of curbing.	Cubic yards of ballast and macadam.
Stark	22	31	1,530	150	.....	.....	.....	.....	.....	.....	1,500
Scioto	21	28	.....	1,500	.....	.....	.....	.....	.....	.....	.....
Tuscarawas	32	28	.....	2,525	1,875	670	.....	300	400	200	.....
Union	25	2	.....	.....	.....	1,518	.....	.....	.....	75	37,513
Van Wert	14	65	646	.....	.....	7,241	.....	.....	.....	.....	25,369
Wood	37	201	59,812	.....	.....	.....	.....	.....	.....	.....	5,500
Wyandot	22	28	813	.....	2,500	31	27	.....	.....	.....	.....
Totals and averages	27	2,928	396,690	108,366	748,712	290,614	57,375	226,654	393,883	209,327	757,142

TABLE SHOWING THE COMPARATIVE LOSS AND GAIN, ETC.—Concluded.

Counties.	No. of weeks work'd		No. of men employed.		Tons of 2,000 pounds each burned for lime.		Tons of 2,000 pounds each burned for fluxing.		Cubic feet of dimension stone.		Cubic yards of ordinary building stone.		Cubic yards for piers and protection purposes.		Square feet of flagging.		Square feet of paving.		Lineal feet of curbing.		Cubic yards of ballast and macadam.	
	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
Scioto.....	10	1	.....	.....	.....	.....	1,040	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Shelby.....	5	.....	6	.....	8 040	.....	150	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stark.....	4	.....	51	63	.....	.....	82	.....	14,280	.....	2,330	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Seneca.....	32	.....	8	1 865	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tuscarawas.....	15	.....	.....	.....	.....	.....	.....	.....	625	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Union.....	.....	.....	19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Van Wert.....	.....	.....	17	.....	60,381	141	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wood.....	1	.....	.....	.....	4,402	.....	.....	.....	2,479	.....	1,693	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wyandot.....	.....	8	.....	.....	.....	.....	.....	.....	.....	.....	17	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	168	85	339	31,386	265,745	7 336	116,941	92,787	401,232	61,772	94,758	39,888	30,615	123,437	68,350	259,195	2,748,520	123,685	16,178	185,902	193,544	.....
Total gain and loss.....	4 $\frac{2}{3}$	.....	425	.....	234,359	.....	109,605	.....	308 445	.....	32,986	9,273	.....	55 087	.....	.....	2,489,325	107,507	.....	.....	7,642	.....

TABLE SHOWING THE COMPARATIVE PRODUCTION OF LIMESTONE FROM 1886 TO 1893, INCLUSIVE.

	1886.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	Gain 1893.
Average number weeks worked	27	33	30	30	31	26	24	27	3
Number of men employed.....	2,383	2,767	3,025	2,631	2,445	3,286	3,353	2,928	425
Number tons of 2,000 pounds burned for lime....	517,270	619,027	602,074	849,442	689,827	744,946	631,049	396,690	234,359
Number tons of 2,000 pounds used for fluxing.....	328,080	478,674	666,481	235,298	308,521	284,478	217,981	108,376	109,605
Number of cubic feet of dimension stone.....	566,697	950,393	1,795,038	898,886	333,077	634,901	1,057,157	748,712	308,445
Number of cubic yards of building stone.....	295,231	385,274	.....	364,685	270,367	361,637	323,600	290,614	32,986
Number cubic yards for piers and protection ...	63,000	78,932	78,384	69,876	81,414	65,295	48,102	57,375	9,273
Number of square feet of flagging.....	187,900	350,954	580,901	413,400	673,850	417,855	17,567	226,651	55,087
Number of square feet of paving	154,636	289,195	313,855	586,361	507,313	4,948,939	2,883,208	393,883	.....
Number of lineal feet of curbing.....	60,650	139,174	205,227	209,339	165,434	200,756	101,820	209,327	107,507
Number cubic yards of ballast and macadam.....	186,810	416,018	445,770	354,544	432,650	622,191	764,784	757,142	7,642

CASUALTIES DURING THE YEAR.

The number of casualties which occur in and about the mines of the state each year are largely attributable to the activity of the coal trade; that is by the steady operation of the mines, the perils to which the miner is exposed while engaged in his daily avocation are greatly reduced.

When the mines are in daily operation the persons who are selected by reason of especial fitness to perform the duties to which they are assigned are at their posts of duty. The miner by being daily in his working place is better enabled to note any change that may occur in the roof or the increase in the weight upon the false work which has been set for his protection. He also more readily notices any interruption in the flow of the currents of air whereby dangerous or poisonous gases are permitted to accumulate.

The mine cars pass to and fro with a regularity which enables the miner to load his turn without neglecting to securely prop his room or to remove the dangers which lurk in all neglected portions of any mine.

The first six months of the year just closed was a period of great activity in the coal industry, during which the mines of the state were operated with great regularity.

About the first of July the financial depression fell upon the mining industry with such force as to cause more or less interruption in the operations of the mines located in the large producing districts of the state.

On August 8th, an agreement was made with the Miners' Executive Board whereby sixty-day notes were to be temporarily paid in lieu of currency. This arrangement was not received with favor by all of the craft, and the result was a suspension which lasted from two to six weeks, seriously affecting the output in some of the chief producing fields of the state. On the termination of this difficulty the demand for coal had diminished to such a degree that the mines, with the exception of those who were loading for the lake trade, were in operation less than half time. This continued up to the close of the year. During a period like this the peril to the miner is greatly increased owing to a neglect in examining the rooms, entries and the false work during the time that the mine is idle. The ventilation is also frequently neglected, which allows the poisonous gases to accumulate. Upon the resumption of work new men are often placed temporarily in positions that require both skill and caution to protect human life, and during the rush that accompanies a resumption of work the dangers which have arisen during the suspension are too frequently overlooked.

Notwithstanding the adverse conditions which arose during the year, the production of coal for 1893 was greatly in excess of that of any year in the state's history and exceeded that of the preceding year by 228,189 tons.

In mining this 327 accidents occurred in and about the mines, there being one for each 45,345 tons of coal mined as compared with one for each 50,171 tons mined during the preceding year. The casualties are divided into three classes, viz., fatal, serious and minor. Of these the returns for the year show that thirty-four resulted fatally, one of which occurred in an iron ore mine in Lawrence county and one in a fire clay mine in Columbiana county, thus reducing the fatalities chargeable to the coal industry to thirty-two. This shows a decrease of ten as compared with the year of 1892.

By a comparison with the year's production it will be seen that there were 463,378 tons of coal mined for each life lost, which is the highest proportion of any year in the state's history and it is believed to exceed that of any state in the union or of any country of which we have a record.

The thirty-four fatal accidents occurred in twelve of the coal producing counties of the state in which there were mined 11,090,705 tons, as compared with forty-two fatalities occurring in fourteen counties which produced 13,291,580 tons during the preceding year.

The greatest number of fatalities that occurred in any one county was in Belmont, in which six are reported, followed by Columbiana with five, and this by Jackson and Stark with four each. In the above four counties fifty-six per cent. of the entire fatalities of the year occurred.

By a comparison of the preceding year as shown in the second table it will be seen that in six counties there was an increase in fatalities of nine; of these there were three in each Belmont, Columbiana and Portage and one in each Athens, Carroll and Lawrence.

By the same table we find in ten counties a decrease of seventeen of which there were three each in Jefferson, Jackson and Perry, two in Hocking and one each in Coshocton, Guernsey, Meigs, Muskingum, Trumbull and Tuscarawas.

In eighteen counties which produced 3,737,392 tons of coal no fatal accidents were reported during the year.

By a comparison with the preceding year, during which no fatalities occurred in fourteen counties in which there were mined 1,289,328 tons, it will be seen that the year just closed shows a gain of 2,448,064 tons, an increase of nearly 200 per cent. in the counties in which to reclaim the year's coal production no life was sacrificed.

Under the classification of serious accidents the returns for the year show that 124 occurred. This is an increase of thirty-one as compared with the year 1892.

Of this number one injury occurred in a fire clay mine in Stark county, which leaves 123 that are attributable to the coal industry.

Six of this class of casualties fell to emigrants from southern Europe who were unacquainted with our language and unskilled in mining. The accidents of this class occurred in eighteen of the mining counties, the greatest number being twenty-five, which is reported from

Stark county; this is followed by Perry with seventeen, Jackson with sixteen, Tuscarawas with twelve and Belmont with ten. The above five counties furnished sixty-four and one-half per cent. of the entire list of serious accidents. By comparing the list with the one of the previous year it will be seen that in eight counties there has been an increase, the most prominent appearing in Stark where the gain is 150 per cent. There has also been a decrease in seven counties, none of which are especially prominent.

The statistics for the year show that in the eighteen counties in which serious accidents occurred there were mined 14,293,163 tons of coal, which indicates that 116,000 tons were mined to each serious accident occurring in the mines of these counties during the year. In twelve counties no serious accidents have been reported.

Under the classification of minor casualties, which embraces those in which no bones were broken or where the unfortunate is but temporarily prevented from resuming his duties, the returns show the number to have been 169. This is a gain of but thirteen as compared with the year of 1892. From the accompanying table it will be seen that they are distributed over twenty-one of the coal producing counties of the state. The greatest number reported was in the counties of Perry, Athens, Belmont, Jackson, Stark and Tuscarawas. In the above six counties there occurred sixty-nine per cent. of the minor accidents of the year. In nine counties there were no minor accidents reported.

In the column showing the total number of accidents that occurred in each county; it will be observed that the greatest number occurred in Perry, Stark, Jackson, Belmont, Athens and Tuscarawas in the order named. The above six counties produced fifty-seven and one-fourth per cent. of the year's coal production and furnished sixty-nine per cent. of the total accidents of all classes.

In eight counties in which there were mined 71,604 tons, there were no accidents of any kind reported during the year.

In view of the adverse conditions with which the mining craft had to contend and the fact that the year's production exceeded that of any in the state's history, the number of casualties that occurred compare quite favorably with the reports of former years.

TABLE SHOWING THE NUMBER OF FATAL, SERIOUS AND MINOR ACCIDENTS AND THE NUMBER OF EACH CLASSIFICATION THAT OCCURRED IN EACH COUNTY IN THE STATE.

Counties.	Fatal.	Serious.	Minor.	Total.
Athens.....	2	8	21	31
Belmont	6	10	21	37
Carroll.....	1	1	1	3
Columbiana	5	2	6	13
Coshocton.....		2	1	3
Gallia				
Guernsey.....		5	7	12
Harrison				
Holmes.....				
Hocking.....		6	9	15
Jackson	4	16	18	38
Jefferson	3	7	7	17
Lawrence.....	1		1	2
Mahoning.....		1	2	3
Medina.....			1	1
Meigs.....		2	4	6
Morgan				
Monroe.....				
Muskingum	1	4	7	12
Noble.....				
Perry.....	3	17	32	52
Portage	2	1	2	5
Scioto.....				
Stark.....	4	25	13	42
Summit			2	2
Trumbull.....		1		1
Tuscarawas	2	12	12	26
Vinton.....			1	1
Washington				
Wayne		4	1	5
Totals.....	34	124	169	327

TABLE DESIGNED TO EXHIBIT A COMPARISON OF THE CASUALTIES WHICH OCCURRED DURING 1893 WITH THOSE OF 1882.

Counties.	1892.				1893.				Total.	
	Fatal.	Serious.	Minor.	Total.	Fatal.	Serious.	Minor.	Total.	Gain.	Loss.
Athens.....	1	8	10	19	2	8	21	31	12	.....
Belmont.....	4	10	18	32	6	10	21	37	5	.....
Carroll.....	.....	1	4	5	1	1	1	3	.....	2
Columbiana.....	3	6	5	14	5	2	6	13	.....	1
Coshocton.....	1	2	5	8	.....	2	1	3	.....	5
Gallia.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Guernsey.....	1	3	16	20	.....	5	7	12	.....	8
Harrison.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Holmes.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hocking.....	2	4	9	15	.....	6	9	15	.....	.....
Jackson.....	7	11	13	31	4	16	18	38	7	.....
Jefferson.....	6	10	17	33	3	7	7	17	.....	16
Lawrence.....	.....	1	.....	1	1	.....	1	2	1	.....
Mahoning.....	.....	4	1	5	.....	1	2	3	.....	2
Medina.....	.....	.....	.....	.....	.....	.....	1	1	1	.....
Meigs.....	1	4	8	13	.....	2	4	6	.....	7
Morgan.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Monroe.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Muskingum.....	2	1	4	7	1	4	7	12	5	.....
Noble.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Perry.....	6	10	9	25	3	17	32	52	27	.....
Portage.....	.....	2	2	4	2	1	2	5	1	.....
Scioto.....	.....	.....	1	1	.....	.....	.....	.....	.....	1
Stark.....	4	10	17	31	4	25	13	42	11	.....
Summit.....	.....	1	1	2	.....	.....	2	2	.....	.....
Trumbull.....	1	1	.....	2	.....	1	.....	1	.....	1
Tuscarawas.....	3	4	13	20	2	12	12	26	6	.....
Vinton.....	.....	.....	.....	.....	.....	.....	1	1	1	.....
Washington.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Wayne.....	.....	.....	3	3	.....	4	1	5	2	.....
Totals.....	42	93	156	291	34	124	169	327	79	43

TABLE EXHIBITING THE GAIN AND LOSS IN EACH CLASSIFICATION DURING 1893 AS COMPARED WITH 1892.

Counties.	Fatal.		Serious.		Minor.	
	Gain.	Loss.	Gain.	Loss.	Gain.	Loss.
Athens.....	1	.....	.....	.....	11	.....
Belmont	2	.....	.....	.....	3	.....
Carroll.....	1	.....	.....	.....	.....	3
Columbiana.....	2	.....	.....	4	1	.....
Coshocton.....	.....	1	.....	.....	.....	4
Galia.....	.....	1	2	.....	.....	9
Guernsey .....	.....	.....	.....	.....	.....	.....
Harrison.....	.....	.....	.....	.....	.....	.....
Holmes.....	.....	.....	.....	.....	.....	.....
Hocking .....	.....	2	2	.....	.....	.....
Jackson.....	.....	3	5	.....	5	.....
Jefferson.....	.....	3	.....	3	.....	10
Lawrence	1	.....	.....	1	1	.....
Mahoning .....	.....	.....	.....	3	1	.....
Medina ..	.....	.....	.....	.....	1	.....
Meigs.....	.....	1	.....	2	.....	4
Morgan.....	.....	.....	.....	.....	.....	.....
Monroe.....	.....	.....	.....	.....	.....	.....
Muskingum .....	.....	1	3	.....	3	.....
Noble.....	.....	.....	.....	.....	.....	.....
Perry.....	.....	3	7	.....	23	.....
Portage	2	.....	.....	1	.....	.....
Scioto .....	.....	.....	.....	.....	.....	1
Stark.....	.....	.....	15	.....	.....	4
Summit.....	.....	.....	.....	1	1	.....
Trumbull.....	.....	1	.....	.....	.....	.....
Tuscarawas .....	.....	1	8	.....	.....	1
Vinton.....	.....	.....	.....	.....	1	.....
Washington .....	.....	.....	.....	.....	.....	.....
Wayne.....	.....	.....	4	.....	.....	2
Totals.....	9	17	46	15	51	38

THE SOURCE OF ACCIDENTS DURING THE YEAR OF 1893.

The initial motive which prompted the creation of the inspecting department was to decrease the number of accidents that annually occur in and about the mines of the state; also to improve their sanitary condition so as to place the avocation of the miner on an equality with the labor in the other industries of the country.

It would exceed the limits of reason to expect that an industry which furnishes employment to 28,000 persons could be conducted for any length of time without the occurrence of some serious casualties. This is especially true of an occupation which is so completely surrounded with peril as that of the miner.

It will be seen from the accompanying table that no casualty emanating from unusual sources has occurred during the past year. The greatest loss of life in a single accident occurred at the Tom Corwin

shaft in Jackson county. By an unforeseen accident to the hoisting machinery the engineer was unable to control the engine while hoisting from the mine a cage loaded with men, three of whom were precipitated to the bottom of the shaft. The result was the most distressing of any accident that has occurred during the writer's term of office, and although no feature of it could in any way be attributable to the negligence on the part of the department, it was the cause of serious consideration by its members. A more detailed account of this accident will be found in the chapter of visits made by the Chief Inspector in another portion of this report.

In the table of summaries and opposite the heading of "Falling down the shaft," it will be seen that fifty per cent. of the accidents resulting from this source during the last six years occurred during the year just closed.

From an accompanying table it will be seen that the proportion of accidents resulting from the falls of roof amounted to thirty-six and one-tenth per cent. This is a decrease of seven and one-fourth per cent. as compared with the preceding year, and three and nine-tenths per cent. less than during 1889, which was then the lowest year since the classification was amended and a record kept of the minor accidents.

The number of accidents resulting from falls of roof was so alarmingly great that the district inspectors gave the matter of properly securing the roof additional attention during the year, and to this the decrease may justly be credited.

It will be further seen that the accidents which result from falls of coal amount to sixteen and nine-tenths per cent., which is an increase as compared with the report of the two preceding years. It also is a decrease as compared with the years of 1888-89-90.

Twenty-six and nine-tenths per cent. of the year's casualties resulted in coming in contact with the mine cars. This is one and nine-tenths greater than the year of 1892, in which they exceeded the returns of any year since 1888, the date when the minor accidents were first recorded. The increase in the casualties from this source can only be accounted for on the assumption that during each year there is an increase in the number of mines in which the coal is transported by machinery, and the further fact that each year witnesses an increase in the coal production of the state.

Accidents from the premature explosion of mine shots and those which result from loose powder are fourth in the year's list. Of these there were twenty, which form six and one-tenth per cent. of the entire year's list. While this is a decrease of one as compared with 1892, the number is alarmingly great. During the years of 1888-89-90, the returns indicated that but twelve and thirteen casualties were attributable to this source. In 1891 the number increased to twenty-four, and in 1892 twenty-one were reported. There is no question but that more than

half of the number that occur each year are the result of the reckless handling of explosives. It is not uncommon to find powder kegs that have been opened by striking them with the point of the pick. In doing this, should a spark be thrown off an explosion would be almost certain to follow.

It is not an uncommon sight to witness a miner load a cartridge with a lighted lamp on his head. While holding an inquest during the past year it developed that the victim was engaged in turning powder into a cartridge from an open ended keg while he had a lighted lamp on his head, and was smoking a pipe. As to which of these agencies can be charged with being responsible for his untimely death will never be known. Repeated warnings of this nature and admonitions from the inspectors and others, have so far failed to reduce the list of casualties emanating from this source.

The explosions of light carburetted hydrogen gas which forms the greatest source of calamities in some of our sister states, furnished but six-tenths of one per cent of the list in our own during the year. There were two persons slightly burned in this manner in a mine in Perry county.

It will be seen by the following tables that the number of persons who met with accidents tabulated under the several remaining causes compares favorably with those of former years.

TABLE SHOWING THE NUMBER AND CHARACTER OF ACCIDENTS DURING THE YEAR, AND TO WHAT SOURCES THEY WERE ATTRIBUTED.

Causes.	Fatal.	Serious.	Minor.	Total.	Percentage.
Falls of roof.....	18	36	64	118	36.1
Falls of coal.....	1	27	27	55	16.9
Injured by mine cars.....	6	34	48	88	26.9
Premature explosion.....	2	9	9	20	6.1
Explosion of gas.....			2	2	.6
Caught under the cage.....		1		1	.3
Injured by mules and horses.....		4	2	6	1.9
Falls of timber.....	1	4		5	1.5
Falling down shaft.....	4	1		5	1.5
Injured by railroad cars.....		1	4	5	1.5
Falling from tippie.....		3	1	4	1.2
Shot blowing through rib.....	1		4	5	1.5
Injured by miner's pick.....			3	3	.9
Injured by mining machine.....			2	2	.6
Miscellaneous causes.....	1	4	3	8	2.5
Totals	34	124	169	327	100.0

TABLE SHOWING THE NUMBER AND CHARACTER OF ACCIDENTS WHICH RESULTED FROM THE PRINCIPAL SOURCES AS REPORTED FROM EACH COUNTY.

Counties.	Fall of roof.			Fall of coal.			Injured by mine cars.			Premature explosion.			Explosion of fire damp C. H. ₄ .			Miscellaneous causes.			Total.
	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	Fatal.	Serious.	Minor.	
Athens	2	2	4	...	1	4	....	4	6	...	...	2	...	...	...	...	1	5	31
Belmont	4	4	12	...	3	1	2	3	5	...	...	1	...	...	...	...	...	2	37
Carroll .....	...	1	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	3
Columbiana.....	2	...	1	1	...	2	1	1	2	...	...	...	...	...	...	1	1	1	13
Coshocton.....	...	...	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	3
Gallia .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Guernsey .....	...	1	4	...	1	...	...	1	2	...	...	1	...	...	...	...	2	...	12
Harrison .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Holmes.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hocking.....	...	2	4	...	1	1	...	...	3	...	1	...	...	...	...	...	2	1	15
Jackson	1	5	7	...	...	1	...	6	6	...	1	1	...	...	...	3	4	3	38
Jefferson.....	3	1	3	...	...	...	...	5	3	...	1	1	...	...	...	...	...	...	17
Lawrence	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2
Mahoning .....	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	3
Medina ...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	1
Meigs .....	...	2	2	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	6
Morgan .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Monroe.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Muskingum	1	1	2	...	...	2	...	...	3	...	2	...	...	...	...	...	1	...	12
Noble .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Perry	1	2	13	...	9	6	...	4	8	...	2	...	...	...	2	2	...	3	52
Portage.....	...	1	1	...	...	...	...	...	1	2	...	...	...	...	...	...	...	...	5
Scioto.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Stark ...	1	8	5	...	7	3	2	5	4	...	...	...	...	...	...	1	5	1	42
Summit .....	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	2
Trumbull.....	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
Tuscarawas.....	2	3	3	...	2	3	...	3	2	...	2	3	...	...	...	...	2	1	26
Vinton .....	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	1
Washington .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Wayne.....	...	...	...	...	4	...	...	...	...	...	...	...	...	...	...	...	...	1	5
Totals	18	35	64	1	28	37	6	34	48	2	9	9	...	...	2	7	18	19	327

TABLE SHOWING THE NUMBER OF ACCIDENTS AND THEIR SOURCE AS REPORTED TO THE DEPARTMENT FROM NOV. 15, 1887, TO NOV. 15, 1893, INCLUSIVE.

Causes.	1888.	1889.	1890.	1891.	1892.	1893.	Total.
Falls of roof.....	100	92	109	112	126	118	657
Falls of coal.....	47	50	4	26	41	55	263
Injured by mine cars	46	48	59	47	73	88	361
Premature explosion.....	13	12	13	24	21	20	103
Explosion of gas	4	4	4	6	3	2	23
Falls down shaft.....	.....	1	2	.....	2	5	10
Crushed under cage.....	8	2	1	3	1	1	16
Fall from tippie	3	.....	.....	.....	2	4	9
Kicked by mule	2	4	2	5	4	6	23
Injured by railroad cars.....	.....	2	.....	.....	3	5	10
Fall of timber.....	.....	.....	.....	4	2	5	11
No cause given	5	3	3	.....	.....	.....	11
Miscellaneous	10	12	8	15	13	18	76
Totals	238	230	245	242	291	327	1,573

THE FOLLOWING TABLE IS DESIGNED TO EXHIBIT THE NUMBER OF TONS OF COAL MINED TO THE LIFE LOST, TO THE PERSON SERIOUSLY INJURED AND TO THE TOTAL NUMBER OF FATAL AND SERIOUS ACCIDENTS FOR EACH YEAR SINCE THE CREATION OF THE DEPARTMENT.

Years.	Number fatal accidents.	Number serious but not fatal.	Number of tons mined to the person killed or seriously injured and amount to the total.			Name of Chief Mine Inspector.
			Fatal.	Serious.	Total.	
1874.....	20	80	108,919	4,844	31,419	Andrew Roy.
1875.....	23	40	202,667	121,606	77,210	"
1876.....	13	70	269,999	50,000	42,168	"
1877.....	30	39	175,000	134,615	76,087	"
*1878.....	20	.....	.....	.....	.....	Jas. D. Poston.
†1879.....	.....	.....	.....	.....	.....	David Owen.
1880.....	22	61	292,624	114,754	84,217	Andrew Roy.
1881.....	29	.....	283,621	.....	.....	"
1882.....	25	.....	378,000	.....	.....	"
1883.....	26	.....	316,516	.....	.....	"
1884.....	26	40	226,636	143,433	86,932	Thos. B. Bancroft.
1885.....	51	32	244,258	153,258	94,170	"
1886.....	43	65	194,309	194,772	78,104	"
1887.....	36	75	286,158	137,356	92,808	"
1888.....	29	79	376,239	138,113	100,924	Rob't M. Haseltine.
1889	33	52	330,527	209,757	128,322	"
1890.....	42	52	280,657	226,708	125,413	"
1891.....	44	66	296,595	197,730	118,636	"
1892.....	42	93	347,929	157,129	108,170	"
1893.....	32	123	463,378	120,553	95,665	"

*Number and amount not given.

†No report made during the year.

From 1874 to 1886, owing to there being no law compelling operators to report accidents, the returns as given are not reliable. In 1886 the law was amended requiring that all accidents should be reported. The production of the State from 1874 to 1883 was estimated.

TABLE SHOWING THE ACCIDENT PERCENTAGES OF THE VARIOUS COAL PRODUCING STATES.

States and countries.	1890.			1891.			1892.			1893.		
	Number of tons mined for each accident.			Number of tons mined for each accident.			Number of tons mined for each accident.			Number of tons mined for each accident.		
	Fatal.	Non-fatal.	Number of men employed for each life lost.	Fatal.	Non-fatal.	Number of men employed for each life lost.	Fatal.	Non-fatal.	Number of men employed for each life lost.	Fatal.	Non-fatal.	Number of men employed for each life lost.
Alabama.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	287,224	.....	571
Colorado.....	104,375	31,385	239	121,126	27,230	227	110,330	30,170	223	146,234	30,371	292
Illinois.....	288,292	51,952	539	261,011	42,672	519	313,373	42,733	590	289,124	49,502	513
Iowa.....	331,709	132,683	824	206,776	88,618	507	202,373	87,988	465	159,133	85,461	361
Kansas.....	314,506	125,802	955	250,339	78,678	813	No report	published	.....	.....	.....	.....
Kentucky.....	281,392	Not given	812	184,383	Not given	542	378,412	151,364	1186	291,854	132,090	939
Maryland.....	.....	.....	.....	380,084	285,063	437	510,818	170,273	661	665,549	415,968	814
Missouri.....	243,739	87,049	.....	147,223	82,813	413	150,864	73,592	404	151,926	122,709	369
Nova Scotia.....	220,444	94,476	592	681,594	638,996	1915	161,898	48,569	.....	336,543	35,802	1,178
Ohio.....	280,687	41,657	528	296,595	65,910	545	347,929	58,634	642	436,120	50,608	847
Pennsylvania.....	154,257	58,235	181	131,980	64,814	287	177,983	76,166	454	.....	.....	.....
Tennessee.....	.....	.....	.....	109,295	43,718	253	166,619	80,437	415	.....	.....	.....
Utah.....	.....	.....	.....	.....	.....	.....	180,836	40,186	.....	418,049	41,801	829
West Virginia.....	206,358	54,450	327	202,262	104,020	362	241,969	81,167	384	111,790	77,510	172

Accidents 1892-1893.

FATAL ACCIDENTS.

1892.

December 9. John Bennett, Pigeon Run mine, Stark county, killed by a fall of stone.

December 16. Taylor Burke, Davis mine, Stark county, killed by falling down the shaft.

December 27. W. Nieratko, Long Run No. 1 mine, Jefferson county, killed by a fall of draw slate.

December 31. John Coonrod, Nail Mill mine, Belmont county, killed by being crushed by mine cars.

1893.

February 3. Geo. Brockley, Flushing mine, Belmont county, killed by a fall of slate.

February 4. Frank Miller, Diamond Fire Clay mine, Tuscarawas county, killed by a fall of rock.

February 4. Geo. Waxler, Princess mine, Muskingum county, killed by a fall of draw-slate.

February 17. Charles Marling, Pittsburgh mine, Belmont county, injured by mine cars running down the slope. Died March 2.

February 23. William Peterson, Upson No. 1 mine, Perry county, killed by a fall of slate.

February 25. John Medvas, Congo mine, Perry county, died of heart failure while at work in the mine.

February 25. John Brown, Tom Corwin No. 1, Jackson county, killed by falling from the cage.

February 25. Geo. Brown, Tom Corwin No. 1 mine, Jackson county, killed by falling from the cage.

February 25. Samuel Brown, Tom Corwin No. 1 mine, Jackson county, killed by falling from the cage.

March 1. Johnnie Jones, No. 4 mine, Carroll county, injured by being run over by mine cars. Died March 4.

March 7. John Partington, Long Run No. 2, Jefferson county, injured by a fall of slate. Died March 8.

March 7. Thos. Stoves, Carbon Hill mine, Columbiana county, injured by being caught between mine car and rib. Died March 9.

March 8. William Preston, Hanley Run mine, Athens county, killed by a fall of rock.

March 23. Gottlieb Schneider, Lake Erie No. 1 mine, Stark county, injured by being caught between loaded mine car and roof. Died March 26.

March 27. Edward Vincent, Franklin mine, Belmont county, killed by a fall of stone.

April 4. August Putzek, Pine Grove No. 1 mine, Lawrence county, killed by a fall of clay.

April 8. Zach Hall, Washingtonville mine, Columbiana county, killed by a fall of slate.

April 17. Archibald Putnam, Lythe mine, Columbiana county, killed by a fall of rock.

June 2. Leonard Saltsman, Pine Grove mine, Columbiana county, killed by a fall of timber.

June 16. Barney Koerbler, Standard mine, Belmont county, killed by a fall of stone.

August 16. Wm. H. Peters, Monarch mine, Tuscarawas county, killed by a fall of rock.

September 6. Richard Martin, Filer's New Shaft mine, Portage county, injured by an explosion of powder. Died September 21.

September 6. Richard Mazey, Filler's New Shaft mine, Portage county, injured by an explosion of powder. Died September 14.

September 20. Arthur Dozer, Union mine, Perry county, killed by a shot breaking down the rib.

September 27. Thos. Wirebaugh, Empire mine, Columbiana county, killed by a fall of coal.

October 13. Chas. Dantz, Hern Brook mine, Stark county, killed by being run over by mine cars.

October 24. Geo. Pelok, Black Diamond mine, Athens county, killed by a fall of slate.

October 25. Jas. Mulligan, Superior No 2 mine, Jackson county, killed by a fall of slate.

November 7. William Clouse, Long Run No. 1 mine, Jefferson county, killed by a fall of draw slate.

November 9. James Vaughn, Wheeling Creek No. 1 mine, Belmont county, injured by a fall of soap stone. Died November 11.

SERIOUS ACCIDENTS.

1892.

November 18. Daniel Farrell, Charter Oak mine, Meigs county, foot mashed and shoulder cut by a fall of slate.

November 25. Theodore Fitges, No. 8 mine, Perry county, collar bone fractured by a premature discharge of shot.

December 1. James Bruce, Black Diamond mine, Belmont county, collar bone broken by mine cars.

December 3. Michael Bartoe, No. 19 mine, Hocking county, two ribs broken and slightly injured internally by falling from the hoppers.

December 14. William Comer, Eliza mine, Jackson county, hip dislocated by a fall of slate.

December 15. Marion Moore, Peacock mine, Meigs county, seriously injured by a fall of slate.

December 19. Wm. E. Davis, XX mine, Perry county, two toes broken by pulling down the coal.

December 27. John Stutz, Clover Hill mine, Stark county, ribs broken by a fall of coal.

December 31. Earnest Davis, Massillon City mine, Stark county, ribs broken and shoulder bruised by a fall of coal.

1893.

January 2. Rosewell Rathburn, Minker Run mine, Athens county, leg fractured and body bruised by a fall of slate.

January 5. Wm. Rose, New Crescent mine, Perry county, finger broken by a fall of slate.

January 11. Chas. Simons, No. 24 mine, Athens county, seriously injured by being caught between mine cars.

January 11. Peter Smith, Fox Lake No. 2 mine, Wayne county, leg broken by a fall of coal.

January 13. Robert Olden, Franklin mine, Muskingum county, face and hands burned by a powder explosion.

January 13. Solomon Leffler, Franklin mine, Muskingum county, face and hands burned by a powder explosion.

January 17. John Foyt, Fluhart No. 3 mine, Jackson county, seriously injured by being run over by a mine car.

January 21. Joseph Daring, Dillon mine, Jefferson county, hands, face and eye badly burned by a premature shot.

January 23. James Watkins, Tunnel Slope mine, Tuscarawas county, collar bone broken by a fall of coal.

January 25. Sam Clough, Conesville No. 2 mine, Coshocton county, leg fractured by a mine car.

January 26. Henry Watkins, Black Diamond mine, Perry county, badly burned by a premature discharge of powder.

January 27. E. A. Harden, Wheeling Valley mine, Belmont county, leg broken by a fall of stone.

January 28. Harrison Wilhelm, Fox Lake No. 2 mine, Wayne county, leg broken by a fall of coal.

January 30. David Burnett, Hartford mine, Guernsey county, head injured and injured internally by a fall of coal.

February -. Sandy Patterson, Trail Run mine, Guernsey county, leg broken by mine cars.

February 2. John Clay, Acme mine, Tuscarawas county, seriously burned with powder.

February 3. Albert Hudson, XX mine, Perry county, arm cut off by mine car running over it.

February 16. Martin Corn, Royal Fire Clay mine, Tuscarawas county, leg broken by a fall of timber.

February 20. Frank Sherrard, Milton mine, Jackson county, leg broken by jumping from one car to another while the trip was in motion.

February 23. Chas. Koontz, Upper Pigeon Run mine, Stark county, arm broken by being caught between mine cars.

February 23. James Ruckman, Laurelton mine, Jefferson county, toe cut off by mine car.

February 25. Sebastian Huwig, Upper Pigeon Run mine, Stark county, collar bone broken by being caught between mine car and pillar.

February 25. Joseph Young, No. 8 mine, Perry county, ribs broken and breast bruised by a fall of coal.

February 25. George Shilling, Minglewood mine, Stark county, ribs broken and back injured by a fall of stone.

February 28. Wilson Byron, Fluhart No. 1, Jackson county, ankle broken by mine cars.

March 10. Barney Brooks, Dillon mine, Jefferson county, arm broken by being caught between the loaded mine car and post.

March 10. James Renfrey, Huron mine, Jackson county, eyes injured.

March 10. Joshua Price, Price mine, Jackson county, leg and ribs broken by falling from the tippie.

March 15. August Burndt, Massillon Stone and Fire Brick Company's mine, Stark county, leg broken by falling into the clay crusher.

March 16. Nicholas Hoffman, Warwick mine, Stark county, seriously injured by falling down the shaft.

March 23. John Evans, No. 4 mine, Carroll county, leg broken by a fall of draw slate.

March 23. Wm. Wiper, Hartford mine, Guernsey county, arm broken by a fall of slate.

March 29. Jesse Sigman, Guernsey mine, Guernsey county, nose broken by being kicked by a mule.

March 31. Geo. McLaskey, Fluhart No. 1 mine, Jackson county, leg broken by mine cars jumping the track.

April 3. Joseph Scomfield, jr., Brookfield mine, Trumbull county, rib broken by a fall of slate.

April 7. Thos. Canary, Minglewood mine, Stark county, shoulder dislocated by a fall of slate.

April 24. Alexander Bernard, Fox Lake No. 2 mine, Wayne county, leg fractured by a fall of coal.

April 26. Frederick Ridenbach, S. Massillon mine, Stark county, leg broken and back bruised by a fall of coal.

April 26. Joseph Barquest, Consolidated mine, Hocking county, arm broken by a premature shot.

April 29. Joseph Davis, Oak Grove mine, Muskingum county, head cut and ribs broken by a fall of slate.

May 12. Burton Kline, Pike Run mine, Tuscarawas county, collar bone broken by being caught between the mine cars and roof.

May 14. Henri Coletti, Brock Hill mine, Tuscarawas county, spine injured by being caught between mine car and post.

May 15. Franklin Rolli, Trenton mine, Tuscarawas county, knee dislocated by being kicked by a mule.

May 15. Mike Polok, Laurelton mine, Jefferson county, leg broken by being caught between mine cars.

May 18. Isaac Jones, Phoenix No. 2 mine, Athens county, collar bone broken by a fall of coal.

May 18. Wm. Enlett, Fluhart No. 1 mine, Jackson county, collar bone fractured by a premature shot.

May 19. Dod Beabout, Norris mine, Guernsey county, three teeth knocked out by being kicked by a mule.

May 22. John Beatty, McKittrick mine, Jackson county, ankle broken by a fall of slate.

May 23. Matt Christmann, Elm Run mine, Stark county, leg broken by a fall of coal.

May 31. Wm. Rhinehart, Massillon City mine, Stark county, leg broken and head bruised by a fall of slate.

June 6. James Campbell, Franklin mine, Belmont county, nose broken by a fall of stone.

June 7. Matt Conrad, Massillon City mine, Stark county, leg broken by a fall of slate.

June 8. John Cantwell, State Line Slope mine, Columbiana county, ribs broken by a fall of timber.

June 17. John Hoffman, Massillon City mine, Stark county, leg broken and head injured by a fall of slate.

June 22. Ed. Abram, Iron Point No. 2 mine, Perry county, arm broken by being caught between mine car and roof.

June 23. Henry Grubb, Hern Brook mine, Stark county, leg broken by a mule falling on him.

June 24. Mark Page, Pike Run mine, Tuscarawas county, collar bone broken by a fall of slate.

June 24. Robert Wallace, New Crescent Mine, Perry county, hip dislocated by a fall of bone coal.

July 1. Stephen Matiski, Laurelton mine, Jefferson county, leg broken by being caught between mine cars.

July 1. David Weyandt, Massillon City mine, Stark county, three fingers cut off by being caught in the springs of the safety catches.

July 2. John Wasserfallen, Odbert's No. 2 mine, Tuscarawas county, ankle crushed by a fall of draw slate.

July 8. Theodore Givins, Maple Hill mine, Belmont county, leg broken by riding on mine cars.

July 10. Sampson Harrison, Hutson No. 1 mine, Portage county, leg broken by a fall of slate.

July 14. Chas. Hogan, Somers mine, Hocking county, back and head injured by a fall of roof.

July 14. Frank Murphy, Somers mine, Hocking county, back and head injured by a fall of roof.

July 15. Noah Howells, Wheeling Creek No. 1 mine, Belmont county, leg broken by a fall of soapstone.

July 20. John Hofer, Krauss mine, Tuscarawas county, thigh fractured by premature shot.

July 20. Peter Ward, New Shaft mine, Columbiana county, hand mashed by mine cars jumping the track.

July 21. William Dickenson, Wheeling Creek No. 1 mine, Belmont county, head and back injured by a fall of soapstone.

July 24. Daniel Hodsworth, Conesville No. 2 mine, Coshocton county, arm broken by mine cars.

July 28. John Skekora, Laurelton mine, Jefferson county, arm broken by a fall of stone.

July 31. Alex. Gauss, Willow Spring mine, Stark county, injured internally by falling in front of a loaded trip.

August 1. Temple Jackson, Black Diamond mine, Athens county, leg broken by a fall of soapstone.

August 7. William Ethridge, Jones & Morgan No. 3 mine, Jackson county, leg and two ribs broken by being struck by mine cars at the bottom of the slope.

August 8. Ciate Echrood, Anderson mine, Stark county, leg broken by a fall of slate.

August 10. Joseph Bruddock, Odbert's No. 2 mine, Tuscarawas county, seriously injured by a fall of coal.

August 17. August Adams, Tippecanoe mine, Mahoning county, leg broken by a fall of slate.

August 23. Thos. Jones, Minglewood mine, Stark county, finger injured by being caught between the mine car and rib.

August 25. E. Fetherngill, West Massillon No. 2 mine, Stark county, leg broken by a fall of coal.

August 26. Geo. Balok, Wheeling Creek No. 1 mine, Belmont county, thumb broken by a fall of coal.

August 28. Henry Giles, No. 8 mine, Perry county, leg broken by a fall of coal.

September 1. Lovell Price, Green Briar mine, Athens county, jaw bone fractured by being caught by a railway car.

September 7. John Blantz, West Massillon No. 2 mine, Stark county, leg broken by a fall of coal.

September 9. William Mitchell, No. 3 (C. & H. C. & I.) mine, Perry county, seriously injured by a fall of coal.

September 9. John McMillen, No. 3 (C. & H. C. & I.) mine, Perry county, arm broken by a fall of coal.

September 11. Crawford Scott, Diamond mine, Jackson county, back dislocated by a fall of slate.

September 12. Camel Scott, No. 8 mine, Perry county, leg broken by a fall of slate.

September 19. John Smith, Furnace mine, Perry county, two ribs broken by a fall of coal.

September 20. John Romine, Iron Point No. 2 mine, Perry county, two ribs and collar bone broken by a fall of coal.

September 20. Moritz Baker, Fox Lake No. 2 mine, Wayne county, leg broken by a fall of coal.

September 20. John Keeth, No. 10 mine, Athens county, leg broken by falling over a pipe while pushing his car into the room.

September 23. John Rossiter, Minglewood mine, Stark county, injured internally by a fall of slate.

September 23. Bruce Mauk, Brush Creek No. 2 mine, Muskingum county, arm and leg broken by falling from the tippie.

September 28. James Penman, Wheeling Creek No. 1 mine, Belmont county, leg broken by mine cars.

September 29. Hugh Patterson, Clover Hill mine, Stark county, foot crushed by being caught between mine cars.

September 30. Chas. Blackman, No. 24 mine, Athens county seriously injured by mine cars.

October 2. John Perry, Green Briar mine, Athens county, leg broken by mine cars.

October 9. Levi Shannon, Black Diamond mine, Hocking county, wrist broken by a fall of timber.

October 9. H. S. Willis, Captina mine, Belmont county, foot mashed by a fall of coal.

October 9. Geo. Blowers, Glen mine, Belmont county, finger cut off by fall of coal.

October 11. John Newman, Wellston No. 3 mine, Jackson county, leg broken by a fall of slate.

October 12. Geo. Brush, No. 29 mine, Hocking county, collar bone broken by a fall of coal.

October 12. Wm. Philpot, Minglewood mine, Stark county, ankle broken by a fall of slate.

October 14. David White, Fluhart No. 2 mine, Jackson county, arm seriously injured by being caught in the fan engine.

October 16. Chas. McCommack, Willow Spring mine, Stark county, leg fractured by a fall of coal.

October 21. Michael Watkins, Tunnel Slope mine, Tuscarawas county, seriously injured by a fall of slate.

October 23. Fred Williams, No. 3 (C. & H. C. & I.) mine, Perry county, seriously injured by falling under a loaded mine car.

October 24. Mark Bates, Benton mine, Jackson county, finger cut off, by putting a mine car on the track.

October 28. Geo. McKnight, Iron Pt. No. 2 mine, Perry county, leg broken by a fall of coal.

October 28. William Mohun, Huff's Run mine, Tuscarawas county, leg fractured by mine cars jumping the track.

October 31. Henry Stewart, Long Run No. 2 mine, Jefferson county, foot seriously injured by mine cars.

November 2. J. Fleming, Co-operative mine, Perry county, seriously injured by being caught between the mine car and rib.

November 10. Edward Bates, Hurd Shaft mine, Jackson county, leg broken by the cage.

November 13. Michael Ratchford, Minglewood mine, Stark county, leg broken by a fall of timber.

November 15. J. O. Stevens, Fluhart No. 1 mine, Jackson county, two ribs broken by a fall of draw slate.

MINOR ACCIDENTS.

1892.

November 16. Geo. Hickman, No. 16 mine, Athens county, leg injured by mine car jumping the track.

November 18. Geo. McCurdy, Diamond mine, Muskingum county, legs and body slightly injured by a fall of coal.

November 22. Alonzo Hutchins, Raccoon No. 2 mine, Hocking county, injured by being caught between the mine car and rib.

November 24. Alex. Penman, Pittsburg No. 1 mine, Belmont county, leg injured by mine car.

November 25. Geo. Fielders, Tom Corwin No. 1 mine, Jackson county, slightly injured by shot blowing through the rib.

November 25. Stace Conkle, Davis mine, Perry county, head and back bruised by a fall of draw slate.

November 26. Michael Short, Hazleton No. 3 mine, Carroll county, head and face injured by a fall of coal.

November 26. Richard Hilton, Scott's mine, Guernsey county, hand injured by being caught between the pillar and mine car.

November 28. Jesse Devore, New Pittsburg No. 6 mine, Hocking county, foot injured by a pick.

November 28. Edward West, Hay No. 2 mine, Coshocton county, injured by a fall of draw slate.

November 29. Chas. Ridenbaugh, Royal Fire Clay mine, Tuscarawas county, head injured by a fall of clay.

November 29. Elias Johnson, No. 24 mine, Athens county, injured by a shot blowing through the rib.

November 29. John Luama, No. 24 mine, Athens county, injured by shot blowing through the rib.

December 2. Isaac Houge, No. 12 mine, Perry county, foot injured by a railroad car.

December 5. Martin Quigley, Rend's No. 3 mine, Perry county, back and head cut by a fall of slate.

December 6. Adam Slutz, Clover Hill mine, Stark county, ankle sprained by a fall of coal.

December 9. Addison Ewers, Springfield No. 2 mine, Athens county, injured by mine cars.

December 11. Arthur Bard, Iron Pt. No. 2 mine, Perry county, injured by being caught between the mine car and rib.

December 12. Bennett Dingey, Black Diamond mine, Belmont county, injured by a fall of slate.

December 14. Chas. Daryman, Filer's mine, Portage county, finger crushed by mine cars.

December 14. Fred Wade, No. 24 mine, Athens county, injured by being caught between the mine car and post.

December 15. Lash Barker, Wheeling Creek No. 2 mine, Belmont county, leg injured by a fall of soapstone.

December 17. Enoch Riley, Buckeye mine, Hocking county, head injured by a fall of bone coal.

December 21. William Clifton, Filer's mine, Portage county, hip and ankle bruised by a fall of rock.

December 23. John Morgee, Black Diamond mine, Athens county, leg and ankle injured by a fall of soapstone.

December 23. William Weakley, Iron Pt. No. 2. Perry county, injured by being kicked by a mule.

December 23. A. Moruney, No. 21 mine, Perry county, leg injured by a fall of slate.

December 27. Nesbut Harvey, No. 21 mine, Perry county, hand mashed by mine car.

December 28. Rich Jenkins, "A" mine, Mahoning county, injured by a fall of slate.

December 28. Jacob Seibert, Odbert's No. 1 mine, Tuscarawas county, back injured by a fall of roof.

December 29. Thos. Griffiths, No. 21, Perry county, foot and ankle sprained by a fall of roof.

December 30. Joseph Greeter, S. Massillon mine, Stark county, hip and legs bruised by a fall of slate.

1893.

January —. J. L. Dill, Charter Oak mine, Meigs county, finger injured by being caught between the car and top.

January 3. William Gibson, Price mine, Jackson county, leg and arm injured by a fall of slate.

January 6. Jas. Hughman, Excelsior mine, Medina county, back and shoulder injured by fall of coal.

January 9. John Welsh, Wellston No. 3 mine, Jackson county, leg injured by being caught between mine cars.

January 9. Newton Exline, Price mine, Jackson county, toe crushed by fall of slate.

January 10. Chas. Nolan, McKinney mine, Athens county, back injured by a fall of soapstone.

January 10. John Sherley, McKinney mine, Athens county, toe injured by being caught in the dumps.

January 11. Wm. Maloney, Price mine, Jackson county, knee bruised by riding on mine cars.

January 18. James Scarlet, Gold Dust mine, Tuscarawas county, injured by the shot blowing through the rib.

January 20. Keney Bastista, Wheeling Creek No. 1 mine, Belmont county, foot injured by a fall of soapstone.

January 20. William Taylor, McKinney mine, Athens county, shoulder and hips injured by a fall of bone coal.

January 23. Geo. McFadden, Black Diamond mine, Hocking county, injured by a fall of coal.

January 24. Thos. McGuire, Wade mine, Stark county, thumb mashed by mine car.

January 26. Ed. Updegraff, Dillon mine, Jefferson county, hips injured by being caught between mine car and post.

January 31. John Cavinee, Star mine, Perry county, burned with gas.

January 31. Chas. Koontz, Star mine, Perry county, burned with gas.

February —. Frank Brown, Beech Grove No. 5 mine, Perry county, injured by fall of coal.

February 1. John Winemiller, New No. 29 mine, Athens county, shoulder and side bruise by a fall of coal.

February 1. Richard Edmonds, Elm Run mine, Stark county, head and body injured by a fall of slate.

February 2. Frank Thompson, Bogg's mine, Belmont county, foot injured by a fall of soapstone.

February 2. Frank Romada, Dillon mine, Jefferson county, toe injured by a fall of stone.

February 3. Ellis P. Jones, Gaylord mine, Belmont county, head, back and legs bruised by a fall of soapstone.

February 6. H. S. Render, Tunnel Slope mine, Tuscarawas county, feet injured by bearing off a standing shot.

February 8. Fred Stiner, Millport mine, Stark county, bruised by bearing of coal.

February 9. William Maloney, Price mine, Jackson county, finger crushed by mine car.

February 14. Frank Nanny, Coe Hill mine, Athens county, leg injured by mine cars.

February 15. William Starner, Tunnel Hill mine, Perry county, finger crushed by mine car.

February 15. William Savage, Baughman mine, Muskingum county, hip and ankle injured by a fall of slate.

February 17. W. H. Vandine, Walnut Hill mine, Belmont county, head injured by a fall of stone.

February 20. John Humphrey, Price mine, Jackson county, finger crushed by drawing a spike.

February 24. John York, Belfont mine, Lawrence county, side injured by a fall of rock.

February 24. Alfred Thompson, No. 21 mine, Perry county, injured by being run over by mine cars.

February 25. John Coleman, Taylor mine, Stark county, leg injured by mine car.

March 1. Wilson Dunning, Tippecanoe mine, Mahoning county, hand burned by a box car.

March 1. D. S. Edwards, XX mine, Perry county, ankle bruised by riding between mine cars.

March 3. Amos Stoale Forrest mine, Stark county, head and arm injured by a fall of coal and slate.

March 6. Geo. Farrell, Wegee mine, Belmont county, injured by being caught between the mine car and rib.

March 7. Lewis Reed, Lehigh mine, Muskingum county, foot bruised by mine car.

March 11. John McCarty, Crescent mine, Athens county, hand and arm burned by a premature explosion of powder.

March 14. B. P. Lee, Franklin mine, Belmont county, accidentally struck in the head with a pick by his partner.

March 14. James Day, Odbert's No. 1 mine, Tuscarawas county, burned with powder while tamping a shot.

March 14. Geo. Woods, Odbert's No. 1 mine, Tuscarawas county, burned with powder.

March 15. Chas. Rich, Furnace No. 2 mine, Perry county, back bruised by a fall of draw slate.

March 23. Demineck Riffnet, No. 8 mine, Perry county, head and legs injured by a fall of bone coal.

March 24. Tom Fisher, Peacock mine, Meigs county, injured by a fall of slate.

March 24. John Bentz, Peacock mine, Meigs county, injured by mine cars.

March 27. Charles Williams, Odbert's No. 1 mine, Tuscarawas county, foot injured by a fall of coal.

March 29. Ed. Moore, Chicago mine, Perry county, back injured by a fall of slate.

March 29. Joseph Yanko, Laurelton mine, Jefferson county, injured by a fall of stone.

April 6. L. Galloway, Long Run No. 2 mine, Jefferson county, back injured by falling under a mine car.

April 7. William Hall, Lake View mine, Summit county, shoulder bruised by a fall of coal.

April 12. James Siler, No. 16, Athens county, legs bruised by a fall of coal.

April 12. George Strawn, Iron Pt. No. 2 mine, Perry county, injured by a fall of coal.

April 14. George Young, Price mine, Jackson county, finger crushed by being caught between mine car and door.

April 18. C. Gorley, Matthews' mine, Guernsey county, injured by a premature shot.

April 18. Fill Simpson, New Crescent mine, Perry county, arm injured by fall of coal.

April 19. Chas. Mullen, Oak Grove mine, Muskingum county, head and face injured by being caught between the mine car and post.

April 21. Pat Hayth, Price mine, Jackson county, finger crushed by mine car.

April 21. Al. Tout, Walnut Hill mine, Belmont county, injured by a fall of draw slate.

April 24. Stephen Richards, Rose Hill mine, Stark county, leg injured by a fall of draw slate.

April 25. Jacob Conrad, Fox Lake No. 2 mine, Wayne county, eye injured by a piece off a steel wedge.

April 27. Robert Welsh, Price mine, Jackson county, head injured by a fall of slate.

May 2. Wm. Evans, Gregg mine, Summit county, face injured by fall of coal.

May 15. H. N. Ritchason, Consolidated mine, Hocking county, leg sprained by a fall of slate.

May 15. Benjamin Nutter, Consolidated mine, Hocking county, leg sprained by being squeezed between mine cars.

May 19. David Jones, Taylor mine, Stark county, hips bruised by mine cars jumping the track.

May 19. Stephen Scaha, Dillon mine, Jefferson county, injured by being caught between mine cars.

May 22. Dole Thornton, Phoenix No. 2 mine, Athens county, ankle sprained by being caught between mine cars.

May 23. Sheridan Worden, No. 16 mine, Athens county, foot injured by being caught in the drawbar of the railway car.

May 23. Elihu Woods, No. 16 mine, Athens county, injured by a fall of coal.

May 25. William Oten, Hern Brook mine, Stark county, injured by a fall of coal.

May 25. William Jones, Comet mine, Jackson county, breast bruised by a fall of slate.

May 27. Geo. McAnaw, No. 21 mine, Perry county, hips injured by a fall of slate.

May 29. Jacob Rauff, Jr., Acme mine, Tuscarawas county, injured by an explosion of powder.

June 1. Isaac Moore, Standard mine, Belmont county, leg sprained by a fall of slate.

June 3. Calvin Young, Zanesville Coal Co.'s mine, Perry county, back injured by a fall of roof.

June 5. Henry Dillon, Prospect Slope mine, Columbiana county, arm injured by coupling railway flats.

June 6. J. C. Hill, Hartford mine, Guernsey county, foot sprained by mine car.

June 7. James Fisher, Pine Grove mine, Columbiana county, injured by a fall of coal.

June 7. William Wilson, Wheeling Creek No. 1 mine, Belmont county, back and ribs injured by falling under a loaded mine car.

June 13. Mort Jay, Charter Oak mine, Meigs county, injured by a fall of slate.

June 15. James Mitchell, Clover Hill mine, Stark county, foot crushed by mine cars.

June 15. D. M. Parker, Standard mine, Jackson county, foot injured by a fall of slate.

June 15. William Maloney, Price mine, Jackson county, back injured by a fall of slate.

June 16. Henry Kenly, Wheeling Creek No. 1 mine, Belmont county, foot injured by a fall of soapstone.

June 20. John Kite, Star No. 3 mine, Jackson county, hand injured by being caught in the mining machine.

June 24. F. M. Reed, New Crescent mine, Perry county, foot bruised by a fall of bone coal.

June 24. William Holden, Superior No. 3 mine, Jackson county, back injured by a fall of slate.

June 24. Geo. Little, Sr., Quaker Valley mine, Columbiana county, leg and arm bruised by a fall of coal.

June 26. Manuel Robinson, Standard mine, Belmont county, leg sprained by being caught in the mule chain.

June 30. Michael Nolan, XX mine, Perry county, injured by a fall of slate.

July 6. Frank Alexander, Dillon mine, Jefferson county, scalp injured by a fall of stone.

July 13. Kirby Davis, Wheeling Creek No. 1 mine, Belmont county, back injured by a fall of soapstone.

July 20. Harry Hirst, Pike Run mine, Tuscarawas county, injured by being caught between mine cars.

July 20. David Anderson, Pike Run mine, Tuscarawas county, injured by being caught between mine cars.

July 24. Geo. Plant, No. 8 mine, Perry county, leg bruised by mine cars.

July 25. Anthony Scarry, New Shaft mine, Columbiana county, head injured by being caught between mine cars and timber.

July 26. Steve Stroma, Gaylord mine, Belmont county, face and head injured by a fall of soapstone.

July 26. Thos. Jones, Wainwright mine, Jackson county, injured by a premature shot.

July 27. Harry Dickens, Pioneer mine, Guernsey county, injured by a fall of slate.

August 2. Frank Heenan, New Shaft mine, Columbiana county, arm and back bruised by a fall of slate.

August 3. John Bustal, Crescent mine, Athens county, injured by a fall of slate.

August 7. John Kniskek, Long Run No. 1 mine, Jefferson county, injured by an explosion of powder.

August 10. John Ragan, Congo mine, Perry county, two fingers mashed by coupling mine cars.

August 22. William Fisher, Black Diamond mine, Hocking county, knee injured by falling from a mine car.

August 23. Isaac Price, Daleton mine, Athens county, leg injured by a fall of coal.

August 23. William Sanders, Wheeling Creek No. 1 mine, Belmont county, leg injured by a fall of soapstone.

August 29. Thos. Colvin, Odbert's No. 1 mine, Tuscarawas county, leg and side bruised by a fall of coal.

August 31. Peter Weher, Miller mine, Stark county, back injured by a fall of slate.

August 31. Chas. O'Conner, McKinney mine, Athens county, burned with powder.

September 7. Ed. McShane, Zanesville Coal Co.'s mine, Perry county, foot and ankle injured by a fall of coal.

September 10. Sim. Sion, High Hill mine, Muskingum county, injured by a fall of coal.

September 14. Michael Jones, Consolidated mine, Hocking county, ankle sprained by a fall of slate.

September 14. Geo. Katchenbach, Consolidated mine, Hocking county, ankle sprained by a fall of slate.

September 20. Dudd Ross, Zanesville Coal Company's mine, Perry county, foot and ankle injured by a fall of coal.

September 21. Jesse Robison, Belmont No. 2 mine, Belmont county, leg sprained by falling from the mine car.

September 22. Mace Robison, Princess mine, Muskingum county, foot injured by mine car.

September 27. Hughey O'Brien, No. 19 mine, Perry county, head and face injured by riding on loaded mine cars.

October —. Calvin Waxler, Princess mine, Muskingum county, injured by a fall of roof.

October 2. Thos. Buton, No. 6 mine, Vinton county, back injured by being caught between mine cars and roof.

October 2. S. E. Totman, Broadwell mine, Athens county, finger mashed by water barrel.

October 2. Newton Finley, Rock Hill mine, Belmont county, foot injured by mine cars.

October 7. Cleiland Weisenstein, Norris mine, Guernsey county, face cut by a fall of slate.

October 18. Thos. Madison, New Shaft mine, Columbiana county, leg bruised by falling under a mine car.

October 17. Clem Tillet, Cochran's mine, Belmont county, injured by being burned with powder.

October 19. Thos. Sanderson, No. 16 mine, Athens county, foot injured by lifting iron track.

October 21. Walter McCarty, Tunnel Slope mine, Tuscarawas county, injured by a fall of roof.

October 22. Clark Padgett, Norris mine, Guernsey county, foot injured by a fall of slate.

October 24. Phillip Flimmers, Hemlock mine, Perry county, injured by a fall of slate.

October 30. Moses Ewing, Congo mine, Perry county, injured by a fall of coal.

November 1. Henry Sacks, Fluhart No. 2 mine, Jackson county, hand injured by being caught between the mine car and entry.

November 3. Henry Knight, No. 21 mine, Perry county, foot bruised by mining machine falling on it.

November 4. Geo. Phillips, Riverton mine, Jackson county, foot injured by a fall of coal.

November 10. S. Penrod, New Hamberg mine, Perry county, injured by a fall of slate.

November 11. Jas. Johnson, Minglewood mine, Stark county, foot injured by being struck with a pick.

November 13. John Anken, Guernsey mine, Guernsey county, foot injured by a fall of slate.

November 15. Jas. Beabout, Belmont No. 2 mine, Belmont county, foot injured by a fall of coal.

ROBERT M. HASELTINE,

Chief Inspector of Mines, Columbus, Ohio.

DISTRICT INSPECTORS.

FIRST DISTRICT.

Composes the counties of Hocking, Vinton, Jackson and Scioto.

JOHN E. SHORT, Inspector,
Carbon Hill, Hocking county, Ohio.

SECOND DISTRICT.

Composes the counties of Athens, Washington, Meigs, Gallia and Lawrence.

ALEXANDER BEATTIE, Inspector,
Nelsonville, Athens county, Ohio.

THIRD DISTRICT.

Composes the counties of Perry, Muskingum, Morgan and Noble.

ROBERT H. MILLER, Inspector,
Shawnee, Perry county, Ohio.

FOURTH DISTRICT.

Composes the counties of Holmes, Coshocton, Guernsey, Belmont and Monroe.

WILLIAM H. TURNER, Inspector,
Cambridge, Guernsey county, Ohio.

FIFTH DISTRICT.

Composes the counties of Harrison, Jefferson, Carroll and the southern half of Columbiana.

THOS. H. LOVE, Inspector,
Leesville, Carroll county, Ohio.

SIXTH DISTRICT.

Composes the counties of Wayne, Stark and Tuscarawas.

JOHN P. JONES, Inspector,
North Lawrence, Stark county, Ohio.

SEVENTH DISTRICT.

Composes the counties of Medina, Summit, Portage, Trumbull, Mahoning and the northern half of Columbiana.

EBENEZER LEWIS, Inspector,
Krumroy, Summit county, Ohio.

Mines Visited by the Chief Inspector.

REND'S NO. 3.

Located at Rendville in Perry county, and is owned by Col. W. P. Rend, of Chicago, Ill. Mr. Jas. McLaughlin acts as superintendent and mine boss. This is a very extensive mine having been in operation for a number of years. At present it furnishes employment for 250 miners. The mine is well ventilated and generally is in good condition. The goaf in the rooms has ignited on several occasions from spontaneous combustion. An occurrence of this caused me to visit the mine on January 10, when the rooms between the fourth and fifth right hand entries were found to be on fire.

STAR NO. 3.

Formerly the Kyle Slope, is situated in Lick township, Jackson county, and is now owned by the Star Furnace Company. Mr. Henry Price acts as both superintendent and mine boss. This mine, after remaining idle for a number of years, has recently been opened up by the above company who have equipped it with two Jeffrey and two Ingersoll Sergeant mining machines. Six machine men, one shooter and eight loaders produce about 100 tons of coal daily. Five miners do the extra work. The vein here worked is the block or No. 1, which, owing to its purity the machines require less power than any mine in the state. For light the employes burn lard oil twenty-two and one-fourth gravity. While in this mine I selected a sample two feet square by three feet four inches in height and the full thickness of the vein, for exhibition at the World's Fair.

MILTON.

Located in the town of Wellston, Jackson county, and is owned by the Milton Coal Company. Mr. T. J. Morgan is superintendent and Mr. Geo. W. Davis mine boss. It is a shaft opening into the Jackson Hill or No. 2 vein, and the coal is very pure and of maximum thickness. The mine was very carefully examined with a view of selecting a sample for the World's Fair. The ventilation on the east side, owing to its being through to the Jackson County mine, was deficient. The west side was in a fair condition. Inspected January 25 in company with District Inspector, John E. Short

JACKSON COUNTY.

Owned by the Jackson County Coal Company, of which T. J. Morgan is superintendent and Jas. Palmer is mine boss. It is located near Wellston and is a new shaft opening into an extension of the Milton mine with which it is connected. It

is equipped with automatic tipping cages, Crain Bros., hoisting engine and is ventilated by a fan capable of producing 25,000 feet of air per minute. Owing to the mine being connected with the old works it is found to be steadily losing in volume until on the third and fourth right hand entries the ventilation was very deficient. Orders were given to repair the stoppings at once.

Inspected on January 27th in company with District Inspector John E. Short.

FLUSHING.

Located near the town of Flushing in Belmont county. It is a drift opening owned by the Flushing Coal Company. Mr. W. G. Williams acts as superintendent. The coal is mined by Harrison mining machines which it is said give excellent results. It was visited on February 3d for the purpose of examining the room where George Brockley had been killed on the day previous. The mine, although idle on account of the fatality, was in good order.

GRACE

Is a shaft mine located on the Ada switch in Jackson county, and is owned by the Chapman Coal Company. It is superintended by Mr. H. L. Chapman. Mr. Edmund Gregory is mine boss. The coal although quite thin is of excellent quality. The mine is well laid out and conducted in the most methodical manner of any mine examined in Jackson county.

TOM CORWIN NO. 1

Is located on the C., H. & D. R'y, about one mile from Glen Roy, Jackson county. It is owned by the Tom Corwin Coal Company of Dayton. Mr. F. D. Ewing is superintendent and W. J. Davis mine boss. Seventy-five miners and forty-six day hands are employed. It is a shaft opening equipped with automatic tipping cages, which are operated by Crain Bros. hoisting engine. The engineer stands opposite the middle bunting on the top landing, from where he operates the engine by the means of a hand rope which runs over a wheel over his head descending about a foot beneath the upper landing, where it runs horizontally to the lever attached to the engines. These engines also have an automatic cut-off thus preventing the cages being wrecked in case of an accident to the hand rope. On the evening of February 25th the men were coming up from the mine on the west cage as usual, the east end one having a rack on it for confining the mules which alternated in the ascending with the men. By some means the engineer lost control of the engine while a cage carrying nine or ten men was ascending. The automatic cut-off stopped the engines when the second landing was reached, but the momentum was so great as to tip the cage with great force and several of the men were precipitated down the schutes. One caught the hook which opens the car doors, thus escaping injury. George and John Brown, father and son and Samuel Brown, were standing on the back end of the cage when it tipped and were thrown down the shaft and instantly killed. At the inquest held before coroner Brunton at Jackson on March 4th, it developed that the cager at the bottom of the shaft who has charge of the cages during the working hours had gone up on the first trip after the whistle blew for quitting time, thus leaving the miners and employes to manage the cages. It also developed that the mule drivers go out on the cages ahead of the mules and hold them by the head while ascending. By this means the hooking of the rod behind the mule was left to any one who chanced to be there. The evidence was that in descending the hook on the mule cage by some means dropped through an opening

about one foot in width and a like distance below the upper landing and caught the hand rope, breaking it, thus depriving the engineer of all control of the engines. In support of this, testimony was produced to prove that a portion of the mule cage was hanging on the hand rope after the accident. I examined the mine in company with District Inspector John E. Short on the 5th, it having resumed operation. There was nothing about the position of the hand rope or the opening between it and the passing cage that would lead any one to anticipate danger from that source, and the fact that this cage had been passing and repassing this point under similar conditions twenty to twenty-five times daily for a month or six weeks, and that prior to the making of this opening this cage had passed up and down for several years without this hook catching on the sides of the shaft, leads me to believe that there was something unusual in the position of this portion of the mule cage on this fatal trip that has not been explained. Further, that had the cager remained at his post of duty this terrible casualty possibly might have been averted.

BROCK HILL.

Located in Goshen township in Tuscarawas county, and is owned by the Brock Hill Coal Company. Mr. S. L. Kent is general manager, Mr. John M. Shank is superintendent and Mr. John L. Davis the mine boss. It is a drift opening into the No. 6 or Middle Kittanning vein which at this point is from four feet to four feet, six inches in thickness. This mine has not been in satisfactory condition during my term of office. As soon as one defect was remedied another would appear. The air courses were allowed to fill up with debris and water to such an extent as to retard the flow of air down to or in some instances below the lawful limit. To avoid the expense of repairing the air courses an air shaft was begun during 1889, but owing to bad judgment and an error in the survey instead of completing it in thirty days as contemplated, it required nearly a year. Shortly thereafter it fell in owing to the coal having been removed while the shaft was being sunk. They then fell back on the old air courses and repaired them to a limited extent. When John P. Jones was assigned to that district, he insisted upon a new outlet being provided whereupon an entry was started toward a desirable point where the coal would outcrop. This was not driven with any dispatch, and finally was being stopped altogether, whereupon about the first of May he applied to the court for an injunction restraining them from further mining until this opening was completed. The company resisted this and securing a large number of witnesses and with an array of legal talent went into court for the purpose of having the injunction set aside. Mr. Jones wired for assistance and knowing the difficulty of securing evidence from among the employes, I summoned District Inspectors Short, Turner, Love and Lewis and on May 5th proceeded to examine the mine. At the intake we found 6,660 feet passing; at the face of entries eleven and twelve on which a number of miners were at work the anemometer would not register even in the middle of the day. In the air course to entries fifteen and sixteen where the remainder of the men were employed there were 1,550 feet. The presence of carbonic acid gas was detected in a number of the working places. The parting where the coal was gathered was in a very dangerous condition. We returned to the court in the afternoon where the trial was continued. In the evening the attorneys and Mr. Kent made a proposition to allow a temporary injunction to remain for thirty days, when they would have the opening completed, and during the interval they would make such repairs as were possible and not employ any more men than could be supplied with a lawful amount of air. They also agreed to pay all the costs, to which our attorney assented. On the 6th we went into court and had the injunction made in accordance with the agreement. The opening was completed within the time specified and the mine was placed in better condition than it had been for years.

ADDISON.

A new shaft opening into the No. 1 or block coal vein. Located in Liberty township, Trumbull county. It is owned by Col. Evan Morris & Company, of Girard, Ohio. Mr. Philpot Morris superintends the mine and Mr. Thos. E. Thomas is mine boss. When visited on September 7th, the shaft had reached the coal, the quality of which was the equal of any yet mined in the Mahoning Valley. The basin here tapped lies between the old Niles shaft and the Kline slope and the Foraker shaft, all of which have been exhausted and abandoned. It is separated from the former by a hill, on top of which the coal is cut, and from the two latter by a wide space of coal too thin to admit of profitable mining. There is no danger in tapping the water in the near future, if ever.

BUFFALO.

Located at Hartford City in Guernsey county. Owned by the Cambridge & Elyria Coal Company, and operated under the supervision of Mr. J. C. Hill. It is a shaft opening into the Upper Freeport or No. 7 vein, which here attains a thickness of six to six and three-fourths feet. The mine is laid out systematically and maintained in the best of order. On December 23d, the date of inspection, it employed one hundred and five miners and eighteen day hands. While here I selected for exhibition at the World's Fair, a sample of coal which received marked attention by many of the visitors.

BRIAR HILL, NO. 2.

This is a drift opening located about two and one-half miles south of Cambridge and operated under the supervision of Mr. O. P. Mathews, of Cambridge. Mr. John Kappas is mine boss. When inspected on December 22d, it employed thirty miners and five day hands. At the time of my visit the mine had suspended for the day and was filled with powder smoke. The ventilating furnace was found to be not drawing properly, and an examination developed that the engineer in charge of an upright boiler and pump close by, had thrown the ashes in the passage way in the rear of the furnace, thus obstructing the ventilation. As District Inspector Turner's orders to remove the ashes and to discontinue the further storing of them in the air course had been ignored and the ashes had further increased, I deemed it necessary to prevent the men from entering the mine until his order had been complied with, and I posted a notice to that effect on the bank mouth. That portion of the mine in which they were drawing pillars was examined in which additional security was deemed necessary, but owing to the impaired efficiency of the furnace the condition of the ventilation could not be determined.

FARMERS

Is a shaft opening into the Upper Freeport vein. It is located at Byesville, Guernsey county. It is owned by Messrs. Anderson & Cope, of Cleveland, and operated under the management of Mr. William A. Smith. Mr. H. C. Andrews, of Dyson, is mine boss. The works were destroyed by lightning on May 30. In rebuilding, the firm desired to adopt the most modern improvements. This necessitated an entire rearrangement of the buildings. At the request of Hon. W. T. Cope, I met him at the mine on June 14th for the purpose of consultation. Near the close of the year the improvements were completed and mining operations were resumed. The mine is now one of the best equipped in this portion of the state.

WHEELING CREEK NO. 1.

Located near Bridgeport, in Belmont county, and owned by the Pittsburgh & Wheeling Coal Co. It is operated under the supervision of Mr. J. E. Waters, of Bridgeport. Mr. Walter Biddington, of Drill, is mine boss. This mine furnishes employment to 315 miners and twenty-five day hands inside and twelve outside. I was called here on November 13th to investigate as to the death of Mr. John Vaughn, a miner who had been employed in this mine for the last fourteen years. On November 9th while at work in his room, a portion of roof by reason of a slip gave way, injuring him to such an extent as to cause death on the 11th. The evidence at the inquest proved the room to have been well propped and in good order. The coroner found that his death was purely accidental.

ÆTNA-STANDARD.

The consolidation in the ownership of the former Ætna & Standard mines, located between Bridgeport and Martin's Ferry in Belmont county, and the connection of the two mines, now operated under the management of Mr. Roger Ashton, has resulted in the merging of the two mines under one title. A new air shaft two hundred feet in depth has recently been sunk in the rear of the field at the bottom of which a new furnace, thirty feet in length and seven feet in width and five and one-half feet in height above the grate bars has been erected. When inspected on November 13th, it was developing 40,000 feet of air per minute which was well distributed among the sixty men employed in the two mines.

ROCK HILL

Is a drift opening located near Flushing, in Belmont county, and superintended by Mr. H. P. Hamby, of Cleveland. Mr. John Gunn, of Flushing, is mine boss. The roof in this mine is very tender and begins to shell off as soon as the air strikes it, which necessitates the lagging of the entry roof as fast as it is exposed, thus adding largely to the operating expenses. The air shaft, which is but twenty feet in depth, is lengthened by a thirty-foot wooden stack. At the bottom of the shaft there is a furnace of fair construction. The air courses were so obstructed with falls of slate as to prevent it from supplying the mine with the necessary amount of fresh air for the sixty men employed. At the return air course in entry No. 16, there were 4,187 feet. On the entries Nos. 23 and 24 there were 4,025 feet; at the face of entry No. 22 the current was too weak to register. With a view of increasing the ventilation, an air shaft had been sunk near the head of entry No. 22, which by some error went down on a room that had fallen in, resulting in it being an injury rather than a benefit to the ventilation. For their immediate relief I directed that entry 12 be cleared out, and as soon as possible that they sink an air shaft on either 22 or 25 entry, at the bottom of which they build a furnace of sufficient capacity as to ventilate the mine properly.

NO. 21.

This mine is owned by the Sunday Creek Coal Company, and is situated in Perry county. Was opened a number of years ago but had remained idle for several years preceding the present one, when it was reopened with a view of equipping it to mine the coal by machinery. The prolonged idleness and necessary changes to be made rendered the ventilation temporarily deficient. Complaints were made of its condition. On November 22d, in company with R. H. Miller, inspector in charge

of the district, and John E. Short, of the second district, I inspected the mine, when it was found that on the main entry there were 14,000 feet of air passing. When it arrived at the first right-hand entry the current was split and 12,000 feet were diverted up said entry and the remainder was carried forward on the main entry and down the left-hand entry to near its face, where it was reinforced by 10,000 feet coming in from an opening caused by the caving in of a room. This current was returned by a second left-hand entry passing a number of rooms in which miners were at work. There being no provisions for turning the current into them I stopped John Hopes and two rooms worked by Peter Obendo until check doors were erected and break-throughs made. At No. 14 cut-off on the second left-hand entry 6,000 feet were passing. Owing to the condition of the work and the nature of the improvements in the course of erection, this was deemed sufficient for the time being. On the first right-hand entry at the mouth of which 12,000 feet of air was entering, the room mining was in a condition of chaos. The door at the cross over between Nos. 1 and 2 entry was found propped open. At the mouth of room No. 15 the current had disappeared. From this room a so-called cut-off had been started both to the right and left. In the rooms from the right cut-off there was no current of air and no provisions to furnish any. Room No. 21 had been driven fifty yards without a break-through. At the face of the entries where the full current should have been found there were 1,400 feet passing. As the main body of miners were employed in this part of the mine and were working without any positive air current, I deemed it best to take them out until this portion of the mine could be placed in a lawful condition. At the request of Mr. Morton, the president, I again inspected the mine November 30th, eight days later, with a view of inspecting the improvements and allow such places as were in a lawful condition to resume work. At the parting of the first right-hand entry there were 12,600 feet of air passing. At the face of No. 16 room at the mouth of which on the former inspection no current was perceptible, were 6,100 feet flowing. In the last break-through in room No. 37, the current had increased to 8,000 feet. At the head of Nos. 1 and 2 right-hand entries, the current had increased from 1,400 to 6,400; at the face of Nos. 1 and 2 north entries turned near the head of Nos. 1 and 2 right-hand entries the current had increased from practically nothing to 3,700 feet. I then examined the work on the 1 and 2 left-hand entries and at their face found 11,800 feet of air passing. At the face of room No. 17 in No. 14 cut-off it had been increased from nothing to 4,200 feet. In view of the fact that further improvements were going forward I allowed mining to resume on No. 14 cut off and also in rooms 36 to 53, inclusive, on the first right hand entry, thus restoring a large portion of the former tonnage. On December 13th in company with President Morton I again inspected the mine and found that its condition had been greatly improved during the interval. With the exception of the rooms on the second right entry in which the break-throughs would be completed within a week, the entire mine was permitted to resume operations.

ALLEN.

This is a new mine located near Dell Roy, in Carroll county, and visited in company with inspector Love on December 8. It was opened by the Allen Coal Co., of Cleveland. Thos. West superintendent and John Moon mine boss. The coal is reached by means of a shaft. At the time of inspection it gave employment to thirty miners. It is ventilated by a Hayden fan which was furnishing the miners with 36,000 feet of air per minute (over 1,000 feet to each). The work was being well opened up, but like all new mines opened in an undrained field, it was very wet. I ordered a passage way made around the shaft bottom and a pair of safety gates hung at the surface landing as provided by law; otherwise the mine was in excellent condition. The oil in their tank was tested and found to have a gravity o

22.1 degrees. A barrel marked "Extra White Miner's Oil" from the Union Oil Co. of Cleveland, O., was tested and found to have a gravity of 25.1 degrees, being 1 degree lighter than the standard. Its use in the mine was forbidden.

LINDEN.

Inspected on December 8, in company with District Inspector Thos. H. Love. It is located in Monroe township, Carroll county, about one mile from Dell Roy. It is a drift opening made into the Upper Freeport or No. 7 vein of the geological scale which here attains a thickness of five and one-half to six feet. As far as developed it is of splendid quality. Owing to the contour of the surface it will occupy but a few acres at this point. The mine was in a very fair condition. The ventilation which was produced by an open fire was ample. The mine is owned by the Linden Coal Co., with Frank McIntosh superintendent and George Selway mine boss. It employs forty-seven men.

LONG RUN NO. 1

Owned by the Wheeling, Lake Erie and Pittsburg Coal Co. Opened in Mt. Pleasant township, in Jefferson county. Mr. George Atherton is superintendent and John Woodyott mine boss. The coal mined here is the No. 8 or Pittsburg vein. It is a drift opening employing 160 miners. The mine is ventilated by a fan that was producing 30,600 feet of air. When visited, with the exception of the check doors, which were not of the best, the mine was in good condition. The main entries have been driven through the first into the second range of hills and are connected by a bridge over which the air is carried by a conduit. Two grades of oil, one of 25.3 and one of 24.9 gravity were condemned and their further use forbidden. It was visited in company with District Inspector Thos. H. Love, December 9th.

LONG RUN NO. 2

Is a drift opening into the same vein of coal and owned and officered by the same company as No. 1. The openings are in close proximity but ventilated separately. I inspected the work along the principal entries which were found in good condition. The roof over this vein is composed of a mixture of fire-clay and slate, locally known as the draw slate owing to its ready separation from the overlying bed of limestone upon the removal of the coal. In this mine it is unusually tender and additional care is taken to protect the miner. The entry ribs are twenty-one feet in thickness and the rooms are driven twenty-seven feet in width and a rib fifteen feet in thickness is left between them. As an additional precaution three rows of posts are set on each side of the roads in the rooms. Inspected December 9th, in company with District Inspector Thos. H. Love.

DILLONVALE.

Located at a town of the same name on a line of the W. & L. E. Ry., in Jefferson county and owned by the Wheeling, Lake Erie and Pittsburg Coal Co. Mr. George Atherton is superintendent and Samuel T. Croyle mine boss. On December 10th, in company with District Inspector Thos. H. Love, I examined the main and third left hand entries, the ribs of which had been affected by a heavy squeeze. I found that the entries had recently been retimbered and were in as safe condition as they could be made under the circumstances. Several of the right hand entries were examined and found to be in fair condition. Like the Long Run mine the roof

here is very tender and it requires the utmost diligence to keep the mine in a safe condition. Owing to the contour of the surface the space at both the top and the foot of the incline plain was limited, greatly curtailing the output of the mine.

LAURELTON.

This mine is located on a line of the W. & L. E. Ry., and is owned by the Wheeling, Lake Erie and Pittsburg Coal Co. It is operated under the supervision of Mr. Geo. Atherton, Mr. Jas. Heppel is mine boss. The outside equipment of this mine is of better design and better build than any of the mines owned by this company. The mine was about to suspend work when visited on December 11th and was not inspected.

FORSYTHE.

A slope mine located near Craig P. O. in Guernsey county. It is owned and operated by Mr. C. P. Forsythe & Sons. Visited in company with District Inspector W. H. Turner, on December 14th, 1892. This mine was opened in the vicinity of an abandoned mine which had filled with water. There being no map of this mine great caution was necessary in approaching it. This was done under the direction of Mr. Turner and was tapped without any casualty. At the time of my visit the water was drawn off and the opening had been made into the abandoned works thus removing all danger from this source. The mine was found in fair condition throughout.

NORRIS.

Is located on the line of the B. & O. Ry., about five miles east of Cambridge in Guernsey county. It is owned by the Leathernwood Creek Coal Co., and superintended by Mr. Arthur Brown. Mr. Geo. W. Phillips acts as mine boss. It is a slope mine and ventilated by a furnace which has to be fired to its full limit in order to supply the lawful quantity of air. Visited in company with W. H. Turner on December 15th, 1892.

NICHOLSON,

A drift mine located on the Cleveland and Marietta Railway, and owned by the Ohio Coal Co. Mr. S. C. Hayt has charge as superintendent and Mr. C. W. H. Kreikenbaum acts as mine boss. The solid coal in this hill has been largely mined and the work of drawing pillars has been commenced in the extreme portions of the mine, furnishing employment to sixty miners and fourteen day hands. It is ventilated by a furnace which was furnishing 4,000 feet of air at the extreme limits of the works. The Upper Freeport or No. 7 vein, which is extensively mined in this vicinity, usually has a thickness of from five feet to five feet four inches. It is separated into two veins by a band from one to one and one-half inches in thickness. This lies from ten inches to one foot above the bottom. Numerous depressions occurred in the floor of this mine in which the coal attains a thickness of six and one-half feet, the increase appearing in the lower bench. The floor which is usually of fire-clay from three to four feet in thickness disappears in the swales. The vein is capped by a heavy body of gray slate which gives off a heavy lubricating oil similar to that which comes through the floor at the Captina mine in Belmont county. Inspected December 21st.

GANDER HILL,

A new opening being made in the second range of hills and is a continuation of the Nicholson mine previously described. The main entries in both are connected by a trestle. The roof in the main entry at the time of my visit indicated the approach of a fault or horseback. As this hill is said to be in line with one in which the Mathews mine had encountered a fault there may be a continuation of it through this field. The mine was in good order. Mr. S. C. Hayt is superintendent, C. W. H. Kreikenbaum is mine boss. Inspected in company with W. H. Turner December 21st.

CISCO,

Is a shaft opening located on the line of the Cleveland and Marietta Railway, near Point Pleasant in the southern part of Guernsey county. It is owned by the Cisco Mining Co., of Cleveland. Mr. H. S. Odbert is superintendent and Geo. P. Bird mine boss. This is a new mine with modern equipments and ventilated by a Hayden fan. When visited on December 16th, it was employing eighteen men.

Mines Visited by the District Inspectors, 1893.

JOHN E. SHORT.....	1st District.
ALEXANDER BEATTIE.....	2d District.
R. H. MILLER	3d District.
W. H. TURNER.....	4th District.
THOS. H. LOVE.....	5th District.
JOHN P. JONES.....	6th District.
EBENEZER LEWIS.....	7th District.

REPORT OF JOHN E. SHORT,

Inspector of the First District, from Nov. 15, 1892, to Nov. 15, 1893.

Hon. R. M. HASELTINE, *Chief Inspector of Mines:*

SIR: I herewith submit my report of the mines of the First District for the year ending November 15, 1893.

During the year twenty-two new mines were opened, eleven of which are located in Jackson county, three in Hocking, three in Scioto and five in Vinton. Nine mines were abandoned and eight were suspended at the close of the year. Of those abandoned, two are located in Hocking, two in Scioto and five in Jackson, while of those suspended, three are located in Hocking, two in Scioto and three in Jackson.

Of the twenty-two new mines opened, nineteen are coal, two iron ore and one fire clay. Four are shafts, one a slope and the remainder drifts. Three of the shafts are located in Jackson county, two of them, the Alma and Ada No. 2, at Glen Roy and are openings into the No. 2 seam. The Ætna is situated about six miles from Wellston on the new extension of the Ohio Southern railroad and is opened into the No. 4, which is reached here at a depth of seventy feet. Just over the county line in Vinton and but a short distance from the Ætna is the Hanging Rock. It is located on the same road and opened into the same seam.

Two hundred and sixty-two visits were made by me during the year, one hundred and twenty-nine of which were in Jackson, eighty-six in Hocking, twenty-eight in Vinton, fourteen in Scioto, three in Jefferson and one each in Tuscarawas and Athens.

Forty-three permanent improvements have been made, twenty-three of which are in Jackson county and which consist of five fans, three furnaces, four air shafts, six second-openings, one stairway, three safety catches and one speaking tube. Eleven are in Hocking county; these are four fans, one furnace, two air shafts and four second-openings. Of the five in Vinton, two are furnaces, two air shafts and one a second-opening, while Scioto has one fan, one furnace and two air shafts.

Thirty scale tests were made during the year, of which twenty-six were in Jackson, three in Hocking and one in Athens county. Of the whole number tested, twenty-four were found accurate and six out of order.

Owing to the slack work during a portion of the year coupled with local strikes and suspension of work, the inspector has been greatly hampered by reason of the mines being found idle so frequently when visited.

Nothing has occurred during the year to mar the friendly feeling existing between the department and the operators and miners of the district, and I sincerely hope that their agreeable relations may continue.

To yourself I desire to express my gratitude for the courtesy shown and assistance rendered me during the year just closed.

Very respectfully,

JOHN E. SHORT,
Inspector First District.

Carbon Hill, Ohio, Nov. 15, 1893.

HOCKING COUNTY.

* LOST RUN NO. 1

Is the property of the Lost Run Coal Co., of Nelsonville, O., and employs seventy-three miners and thirty day hands, with Joseph Slater superintendent and Samuel Coulter mine boss. It is located near New Straitsville on the Monday Creek branch of the C., H. V. & T. railway. During the year it has usually been found in fair condition, except April 17th when the rooms on the first left entry were stopped until break-throughs could be made. A new fan has been erected and the ventilation is good.

LOST RUN NO. 2

Is under the same management and is operated in connection with No. 1. Doors and break-throughs have been neglected and the ventilation has suffered in consequence. November 23d, two doors were ordered placed on the main entry between the first and second west entries. April 17th, break-throughs were ordered between rooms on the east entries. When visited September 6th, the mine was found in good condition except on the east side where the air was deficient and where a pair of entries are being driven to meet entries from the No. 1 mine with the object of ventilating both mines with the one fan. At present a furnace is used and the result is not satisfactory. Sixty-eight miners and fifteen day hands are employed.

LOST RUN NO. 3

Is located opposite the other two mines, all using the same tippie. Thus far it has failed to develop the coal in its natural state and has been in fault since opening. Only one entry is working and two men are employed.

MORRIS NO. 1

Is owned and operated by the Morris Coal Co., of Cleveland, and is situated at Sand Run. One hundred and thirty-five miners and sixty-two day hands are employed, with Geo. W. Brashears superintendent and John McMillen mine boss. At no time during the year has this mine been found in a satisfactory condition although improvements have been made. The fan has been removed to the air shaft at the old mine through which the coal is now being brought out and a great many new brattices have been built. It is a machine mine and the miners shoot at all hours of the day, the result being that the workings are constantly filled with powder smoke. It was visited four times and at the close of the year was found in better condition than at any time previous.

MORRIS NO. 2

Is located at Jobs on the Brush Fork branch of the C., H. V. & T. railway. It is a machine mine employing two hundred and twelve miners and ninety-five day hands. It is in good condition for security and the air is well distributed throughout, there being no fault to find with the ventilation except that the air becomes quite foul when it reaches the last of the work on the return. Geo. W. Brashears is superintendent and John A. Hopkins mine boss.

MORRIS NO. 3

Is located at Jobs and is worked in connection with No. 2, the coal all being handled over the same hoppers. It also is the property of the Morris Coal Co., and employs three hundred miners and sixty day hands with Geo. W. Brashears superintendent and Edward Fluke mine boss. It has always been found in good condition except that the air was somewhat sluggish on the third north entry when visited August 2d. Mr. Fluke informed me that they were then working for an air shaft at that point which, when completed, would remedy the evil.

NEW PITTSBURG NO. 6

Is the property of the New Pittsburg Coal Co., of Columbus, O., and is located at Blatchford on the Brush Fork branch of the C., H. V. & T. railway. It is a machine mine, employing 147 miners and thirty-five day hands and was the first of the four mines now operated by this company to be opened. When visited June 23d the ventilation was poor in some parts of the mine and a pair of west entries were being driven to meet the entries from the No. 8 mine which would bring the air much nearer the work and greatly improve the ventilation when completed. Doors and brattices were ordered repaired and the entries double shifted. Also the roof to be secured where the trapper stands at the fifteenth and sixteenth west entry door. A complaint having been received regarding the qualifications of some of the boys employed in the mine, I hunted them up and after a careful examination found them to be all of lawful age and entitled to remain at their present employment. James R. Birkbeck is superintendent and William Powers mine boss.

NEW PITTSBURG NO. 7

Is also the property of the New Pittsburg Coal Company and is worked in connection with No. 6, the coal all being handled over the same hoppers. This mine is usually found in fair condition for ventilation, but the security is not so good, there being considerable bad roof on some of the entries. The fourth east entry on the north was ordered timbered and made safe, and brattices were ordered built between the third and fourth west entries on the north. The second west entry on the south was stopped August 1st until break-throughs could be made, it being in advance of the air. During the year another opening has been made on the north side which serves as a manway and is used as such. Two hundred and ten miners and eighty-seven day hands are employed, with Jas. R. Birkbeck as superintendent and Geo. W. Butts, mine boss.

NEW PITTSBURG NO. 8

Is located on the Brush Fork branch of the C., H. V. & T. Railway, about one mile above Blatchford and is owned and operated by the New Pittsburg Coal Company. It is a new mine just being developed and is equipped with rope haulage and Westinghouse electric plant. A second opening has been made and a fan erected. Jas. R. Birkbeck is superintendent.

NEW PITTSBURG NO. 9

Is also the property of the New Pittsburg Coal Company, and is operated in connection with No. 8, the two being known as the Monarch. It is a machine mine

having rope haulage and using compressed air as a power. A new fan has been erected and everything is in first class shape. Jas. R. Birkbeck is superintendent and David Ayers, mine boss.

CONSOLIDATED

Is owned and operated by the Consolidated Coal and Mining Company, of Cincinnati, Ohio, and is located at Breashears on the Brush Fork branch of the C., H. V. & T. Railway. It is a machine mine employing one hundred and forty miners and seventy-five day hands, with M. E. Shafer, superintendent and Geo. J. Thomas, mine boss. It has always been found in very fair condition, the ventilation being good and the air well distributed.

NO. 19 NORTH HILL

Is owned and operated by the C. & H. C. & I. Company, of Columbus, Ohio, and is located at New Longstreths on the C., H. V. & T. Railway. It is a machine mine employing one hundred and forty miners and seventy-five day hands. When visited November 28th, it was found in poor condition for air, the doors and brattices being neglected. All doors and stoppings on the fifth east entry, and doors on the main north entry were ordered repaired. Also the air course on the second west entry cleaned out and enlarged. Break-throughs were marked off between rooms on the fifth, sixth, seventh and eighth east entries and the second, seventh, eighth, ninth and tenth west entries. The scales were tested February 17th and found correct. Subsequent visits found the improvements completed and the mine in much better condition than at any time previous, the doors and stoppings being all in good condition. T. D. Price has entire supervision.

NO. 19 SOUTH HILL

Is also the property of the C. & H. C. & I. Company, and is operated in connection with the North Hill, all of the coal being handled over the same hoppers. It was formerly a machine mine, but during the earlier part of the year the machines were taken out and it has continued to run as a pick mine since. With the exception of a break-through required occasionally, it has been found in fair condition throughout the year. Forty miners and six day hands are employed with T. D. Price superintendent and Geo. Edgel mine boss.

C. & H. C. & I. CO. No. 15

Is located at Sand Run, on the C., H. V. & T. Railway, and is the property of the C. & H. C. & I. Company. It has been suspended during the entire year.

MONDAY, OLD MINE,

Is operated by the Stalter Coal Company, of Columbus, Ohio, and is situated at Monday, on the C., H. V. & T. Railway. Forty miners and nine day hands are employed, with Robt. Stalter superintendent and Chas. Stalter mine boss. When visited March 16th it was found in poor condition for air, the straight entry being very bad. It was being driven to an air shaft which had been sunk and lacked about twenty feet to go through. At that time the mine was running very irregularly and I requested that the entry be allowed to work every day until it should go through.

It was completed in a few days and a basket was placed in the air shaft which furnished sufficient air for the number of men employed. Doors were also erected on the straight and dark entries and break-throughs closed in No. 8 room, for the purpose of carrying the air forward to a pair of south entries started from the face of the room.

MONDAY, NEW MINE

Is also operated by the Stalter Coal Company, and is run in connection with the old mine, the coal being hauled over the same tippie. It is almost exhausted and there is now nothing but pillar work being done. When last visited, September 8, the mine had suspended temporarily. August 3d the scales were tested and found twenty-five pounds to one hundred pounds light or heavy, according to where the weights might be placed in the box. This result was due to the upper end of the box binding on the screen apron. When the friction was removed they weighed accurately. Seventeen miners and one day hand are employed, with Robt. Stalter superintendent and Chas. Stalter mine boss.

SOMERS

Is owned and operated by the Somers Coal Company, of Columbus, Ohio, and is located at Monday, on the C., H. V. & T. Railway. It was visited four times and only found in operation once. When last visited, August 3d, it had suspended temporarily. When in operation March 16th, one hundred miners and twenty-four day hands were employed, but the force has been greatly reduced since then, as the mine is almost exhausted. Zeth Williams is superintendent and Chas. Hogan mine boss.

COALGATE

Is also the property of the Somers Coal Company, and is located at Coalgate, about four miles above Murray City. It is a new mine opened during the year and is equipped with an electric plant, all of the coal being mined by machinery. Considering that it is a new mine, the condition has not always been satisfactory. In the haste to develop it, rooms were being turned in advance of the air, and doors and break-throughs were being neglected. They were notified to make break-throughs at a lawful distance and to keep up the doors with the work as it advanced. A new fan has been put in, but it does not furnish the volume of air it should, owing to lack of power to speed it. The steam is at present carried from the battery of boilers at the hopper, and having considerable distance to travel, it loses force by reason of the small pipe used and its exposure to the weather. A boiler will be placed at the fan in the near future and this will remedy the evil complained of. When last visited October 4th, sixty miners and twenty-six day hands were employed with Zeth Williams superintendent and Wat Lewis mine boss.

MURRAY CITY NO. 29

Is owned and operated by the Greendale Furnace Company, of Columbus, Ohio, and is located at Murray City on the Snow Fork branch of the C., H. V. & T. Railway. It is a machine and pick mine combined, the south being all pick work, while the north half is machine work exclusively. One hundred and fifty miners and forty day hands are employed with Chas. Boardman, superintendent and J. W. Miskell, mine boss. It was visited four times during the year and always found in good

condition, except that the ventilation is at times deficient. A furnace is used for ventilating purposes, and it requires constant and careful attention to produce a sufficient volume of air for the force employed, owing to an increased extent of territory now being worked. The day hands, trappers and others are in the habit of using black oil and complaints are constant, but I have thus far been unable to detect them in the act and their fellow workmen are loath to inform on them.

BLACK DIAMOND

Is the property of the Haydenville Mining and Manufacturing Company, and is located near Haydenville on the C., H. V. & T. Railway. But little work is being done here and it was always found idle when visited. John W. Jones is superintendent and Daniel Walters mine boss.

COTTON ALLEN

Is a clay mine situated near the Black Diamond, and is the property of the same company. The product is consumed at the large factory of the company located at Haydenville. John W. Jones has general supervision.

TUNNEL

Is also the property of the H. M. & M. Co., and is located at Haydenville. It is also a clay mine and is under the supervision of John W. Jones.

COLUMBUS BRICK AND TERRA COTTA CO.

Is a clay mine situated at Union furnace, on the C., H. V. & T. Ry., and is owned and operated by the company after which it is named. The entire product is consumed at the factory of the company at Union furnace, where every variety of terra cotta work is manufactured. E. Lovejoy is general superintendent.

KITTANNING,

When visited November 17th, was the property of the Raccoon Mining Co., and was found in fair condition, except the McHenry entry, where the air was sluggish. G. C. Weitzel was superintendent and W. J. Nail mine boss. On three subsequent visits I found it idle, and April 17th the company had become insolvent and there was nothing to indicate an early resumption of work.

KISTLERS

Is a new mine situated near New Longstreths and is leased and operated by J. F. Schuler of New Longstreth. It is a small mine employing but ten men and is in fair condition. J. F. Schuler is superintendent and mine boss.

BUCKEYE NO. 1

Is located near Nelsonville on the Brookswitch of the C., H. V. & T. Ry., and is operated by the Buckeye Coal Co. of Nelsonville. It has always been found in poor condition and is almost ready for abandonment, a great many of the pillars having been drawn. Geo. F. Hall is superintendent and John Ginnitty mine boss.

BUCKEYE NO. 2

Is also operated by the Buckeye Coal Co. and adjoins the No. 1, both mines using the same tipple. April 4th I found it in fair condition, except that several stoppings needed claying, and a check door was required on the dark entry, which was ordered. During the remainder of the year it was found in very fair condition until September 7th when the air current was found deficient. I ordered them to make all necessary improvements at once, or the mine would be closed. This they agreed to do, and no further trouble was experienced. Fifty miners and four day hands are employed with Geo. Hall, superintendent, and John Ginitty, mine boss.

LAMA

Is a small mine operated by J. M. Lama of Nelsonville, O., and is situated near the Buckeye mines. It was always found idle when visited. J. M. Lama is in charge.

THOROUGHFARE

Is located near Nelsonville on the Brooks switch of the C., H. V. & T. Ry., and was operated by Beattie Bros., but has been abandoned.

JOHNSON HILL

Is located on the Brooks switch of the C., H. V. & T. Ry. near Nelsonville, and was operated by the Johnson Hill Coal Co., with William Dalrymple, superintendent, and William Myers, mine boss. When visited February 16th, I found the mine idle and on April 3d it had been abandoned.

EAST HILL

Is a new mine just being opened, and is located near Buchtel on the Snow Fork branch of the C., H. V. & T. Ry. It is operated by Beattie Bros. & Co., with James McVicker, superintendent, and James Beattie, mine boss. When visited November 2d, it was found idle and no inspection was made.

MITCHELL'S

Is a small mine located at Carbon Hill, and is operated by Samuel Mitchell, who is also superintendent. When in operation two miners are employed.

CHUTES

Is located at Carbon Hill and has been suspended during the year.

BATS' NEST

Located at Carbon Hill and formerly operated by England & Wagner, but has been abandoned.

JACKSON COUNTY.

WELLSTON NO. 1

Is located at Wellston on the B. & O. S. W. Ry. and is owned and operated by the Wellston Coal Co. Sixty-five miners and twenty-two day hands are employed, with T. J. Morgan, superintendent, and Geo. M. Stewart, mine boss. When visited December 13th there was some bad roof on the main entry which I ordered taken down, also stoppings repaired and a check door placed on the third east entry. June 30th the mine was idle, and on October 19th a new door was needed on the main east entry and the cut-off doors were in need of repairs, which were ordered. At this time the ventilation was not as good as it should have been, owing to the air leaking badly on the straight entries.

WELLSTON NO. 2

Is located at Wellston and is also the property of the Wellston Coal Co. When visited December 15th it was in fair condition, except on the east side where the air was sluggish, and an air course was being driven to the No. 1 mine. It was being double-shifted and would be through in a few days. A small piece of bad roof on the first right entry was ordered taken down and the door repaired. January 11th the doors on the main and third east entries were ordered repaired and a traveling way built over the swale on the main entry. A scale test was made on the 9th of February, when they were found to be twenty pounds light on the second and ten pounds light on the third draft, due to the action of the wind on the weigh box. All other drafts were accurate. October 12th a door was ordered on the first east entry south, and stoppings put in to carry the air to the face of the rooms. Also the stairway to be repaired. At this time 120 miners and thirty day hands were employed, with T. J. Morgan, superintendent, and Cornelius Coyle, mine boss.

WELLSTON NO. 3

Is owned and operated by the Wellston Coal Co. and is located near Wellston on the C., H. & D. Ry. One hundred and forty miners and fifty-four day hands are employed, with T. J. Morgan, superintendent, and Chas. Hudson, mine boss. November 25th I tested two sets of scales and found those used in loading box cars accurate, while the others used in loading the flat cars were two and one-half to five pounds light on a draft of 150 pounds. After being cleaned carefully they weighed accurately. December 15th the engine room at this mine was discovered to be on fire, and for a short time all the buildings were threatened with destruction, but by prompt action were saved. All of the men at work in the mine were taken out safely. On my third visit I stopped the main south entry until the break-throughs could be closed and the air course cleaned out, which had almost filled up to the roof.

FLUHART NO. 1

Is located at Wellston and is owned and operated by the Fluhart Coal and Mining Co. When inspected February 7th, a check door was ordered placed on the No. 3 entry and the break-throughs to be closed tight. The mine was making a great deal of water and the roads were wet and muddy in consequence. There were a number of rooms with a very bad roof for which I ordered a plentiful supply of timber. June 28th the mine was idle, and on July 1st I found that the fan had been removed to the new air shaft, thereby greatly improving the ventilation. At this time the

mine was in a much better condition than at any time previous. October 27th the scales were tested and found accurate. Seventy-five miners and thirty day hands are employed, with Theo. Fluhart, superintendent, and Thos. Stiff, mine boss.

FLUHART NO. 2

Is located near Wellston and is also the property of the Fluhart Coal & Mining Company, and employs 110 miners and forty-one day hands, with Theo. Fluhart, superintendent, and H. Melvin, mine boss, the latter having succeeded T. B. Patrick, who resigned about the close of the year. This mine has always been found in a very fair condition and there has been no serious cause for complaint. March 23d I ordered a ladder placed in the air shaft, the old one having been broken down by the ice during the winter. I tested the scales October 27th, by request of the company, and found them weighing accurately.

FLUHART NO. 3

Is located near Wellston and is owned and operated by the Fluhart Coal Mining Company. It is one of the two mines in the Wellston field which generates fire damp and has been the scene of several accidents resulting from explosions, none of which fortunately have proved fatal. February 11th I ordered room No. 13 on the straight east entry stopped until the air could be brought up, as there was some gas there which the air current did not reach. I also ordered a check door erected on the same entry and other doors repaired. Subsequently break-throughs between Nos. 5 and 6 east entries were ordered closed and stoppings between Nos. 3 and 4 east entries repaired and a trapper placed at the south entry door. I also ordered the manway, which had nearly closed up with falls, cleaned out and placed in traveling order. October 27th I tested the scales and found them accurate. Fifty-five miners and twenty-one day hands are employed, with Theo. Fluhart, superintendent, and David Powell, mine boss.

TOM CORWIN No. 1

Is owned and operated by the Tom Corwin Coal Company of Dayton, O., and is located near Glen Roy on the C., H. & D. Ry. This mine was the scene of the worst accident on the 25th of February that has ever occurred in the first district, whereby the lives of three human beings were dashed out in an instant. The names of the unfortunates were George, Samuel and John Brown, two of whom were father and son. The day's work had been completed and the men and mules were being hoisted to the surface. The mine is equipped with a Crain Bros. hoist and self-dumping cages, the engineer controlling the engine with a "hand-rope" while standing on the ground landing when hoisting men. At the time of the accident there were nine men on the cage which the engineer lost control of by the breaking of the "hand-rope," and before he could reach the engine room, it had ascended to the top landing where it dumped automatically and threw six of the men into the chutes and precipitated the others to the bottom of the shaft below, a distance of one hundred and thirty feet. March 1st I attended the coroner's inquest, accompanied by the Chief Inspector, R. M. Haseltine, at which time all the evidence pertaining to the said affair was brought out in the detail. After the inquest had been concluded, we visited the mine, where the ropes were tested and condemned by the Chief Inspector, and all persons warned not to travel on the cages thereafter. On the 10th of March I returned and found that the new ropes had been put on and a new "hoisting-rope" was ready to be put on. After carefully testing the safety catches I found them to be

worthless and notified all persons to use the stairway in the future. The interior of the mine was in very fair condition, except the stoppings on the sixth and seventh right entries on the south, and first and second left on the north which were leaking and were ordered repaired. On the two last named entries there was some very bad roof which was also ordered removed. Immediately after the accident a slope was being sunk to be used as a manway and has since been completed. Sixty-eight miners and forty-six day hands are employed with F. D. Ewing, superintendent, and Wm. J. Davis, mine boss.

TOM CORWIN NO. 2

Is also the property of the Tom Corwin Coal Company, and is located near Wellston. This mine has usually been found in very fair condition, except on my visit of June 15th, when I found the air-course on the cut-off almost closed and the door on the west entry being neglected. I ordered the former cleaned out and a trapper placed at the latter. During the year a second opening has been completed in the form of a slope which is used as a manway and is a good one. I tested the scales October 20th and found them accurate. Forty-one miners and eleven day hands are employed with S. W. Lake, superintendent, and Taylor Branscomb, mine boss.

ADA NO. 1

Is located at Glen Roy, on the O. S. R. R., and is the property of the Ada Coal Company of Jackson, O. When visited June 16th it was idle and October 18th had suspended indefinitely. M. D. Jones is superintendent and Thos. Phillips mine boss.

ADA NO. 2

Is also the property of the Ada Coal Company, and is located near No. 1, with which it is connected. It is a new mine and is a shaft opening equipped with all modern improvements, having a Crain Bros. hoist and self-dumping cages. The scales were tested October 18th and found to weigh accurately. M. D. Jones is superintendent and Thomas Phillips mine boss.

SUPERIOR NO. 1

Is owned and operated by the Superior Coal Company of Jackson O., and is located on the O. S. and the C., H. & D. Rys., a branch of the latter having been put in during the year. It is about midway between Wellston and Glen Roy and is among the oldest of the mines in that locality. It is a shaft opening sixty feet in depth and has a second opening in the form of a slope which is used exclusively as a manway. It is usually found in fair condition considering the extent of territory that it now covers. Ninety miners and thirty day hands are employed with H. C. Murfin, superintendent, and Zenos Emory, mine boss.

SUPERIOR NO. 2

Is also the property of the Superior Coal Company, and is located about half a mile east of No. 1 on the same lines of railroad. March 20th the scales on the C., H. & D. side were tested and found to be twenty-five pounds light on a draft of one hundred and fifty pounds, and they were notified to have them adjusted at once.

On the 22d I again tested them on a draft of twelve hundred and thirty pounds and found them eighty pounds light. An expert scale man had been sent for who arrived a day or two later and adjusted them and there has been no complaint since. The scales on the O. S. side were also tested and found to be weighing accurately. I visited the mine October 26th and 27th for the purpose of investigating an accident whereby James Mulligan was instantly killed. He was employed as a miner and was at work at the face of his room, No. 1, on the last left entry on the north when the accident occurred. It was occasioned by a slip in the roof. The room was well timbered and bore evidence of having been cared for in a practical manner by the deceased. This mine has always been found in very fair condition and is under the supervision of H. C. Murfin, superintendent and W. J. Davis, mine boss.

SUPERIOR NO. 3

Is owned and operated by the Superior Coal Company and is located on Bunday's Run on the B. & O. S. W. R. R., about one mile from Wellston. It is a comparatively new mine and is generally found in fair condition. They have a slope for second opening which is used for manway and is a good one. H. S. Willard is superintendent and Jos. Currington mine boss.

SUPERIOR NO. 4

Is located about three miles from Wellston, at the Dayton and Ironton Junction of the C., H. & D. R. R. It is also the property of the Superior Coal Company and employs fifty-eight miners and twenty-two day hands under the supervision of H. S. Willard superintendent and F. M. Hudson mine boss. February 8th I found the mine idle, the men having gone out on a strike. A speaking-tube had been put in and safety-catches placed on both cages. On a subsequent visit the mine was in very fair condition, the ventilation being good. There is considerable bad roof here but there is a plentiful supply of timber always on hand to secure it properly. I ordered the second opening completed at once, and it has since been done.

SUPERIOR NO. 5

Is located at Coalton on the C., H. & D. Ry., employs sixty-five miners and twenty day hands with Geo. Wheldon, superintendent, and John J. Rowe, mine boss. It is also the property of the Superior Coal Company, and for the first time in many years can be said to be in good condition. The chief trouble in the past has been lack of ventilation owing to inadequate facilities; but this has at last been remedied by the erection of a splendid fan which was producing thirty-five thousand cubic feet of air per minute when the last reading was obtained. In all other respects the mine has always been in very fair condition and there has been no cause for complaint.

SUPERIOR NO. 6

Is located near Wellston and is owned and operated by the Superior Coal Company, with H. S. Willard, superintendent, and W. E. James, mine boss. It is a slope opening with fan ventilation and employs forty-seven miners and twenty-five day hands. Being an old mine and covering a good deal of territory considerable difficulty is experienced in keeping it in good condition. I ordered a door placed on the main north entry between the east entries and the other doors and stoppings repaired. I also ordered the erection of a ladder in the air shaft as a means of escape in case of accident in the slope.

COMET

Is owned and operated by the Comet Coal Company of Dayton, O., and is situated about one mile west of Wellston, on the O. S. R. R. When visited February 8th, a heavy squeeze was on the main north entry which was being cribbed extensively, as was also the right cut-off. I ordered the entry timbered where roof appeared to be dangerous at other points. Also ordered break-throughs closed on the south entry. In all other respects the mine was in good condition. On a subsequent visit I found the mine in good order, and on October 18th I tested the scales and found them weighing accurately. Fifty miners and fifteen day hands are employed, with Peter Gallagher in the capacity of superintendent and mine boss.

WAINWRIGHT

Is the property of the Wainwright Coal Company, and is located about two miles east of Wellston on the C., H. & D. R. R. This mine has always been found in very fair condition, the ventilation being first class. March 24th I found the mine in good condition and no trace of fire damp anywhere, notwithstanding this mine generates large quantities of it. When visited May 19th it was in the usual condition except in Caldwell's room on the second east entry where a quantity of fire-damp was found, the presence of which was due to the brattice not being up with the work. At this time the miners were on a strike because the fan had been moved from the shaft to the manway and the latter made the intake air course. They objected to traveling through the strong current of air (thirty-two thousand five hundred cubic feet per minute) produced by the fan in its new location. As this amount was more than twelve thousand feet in excess of what it had ever produced while in its former position, and as the mine generates a very considerable amount of fire-damp, the company contended that the change was a very desirable and beneficial one for all concerned, notwithstanding the slight inconvenience attendant upon ascending or descending the slope. I suggested that the speed of the fan be slackened while the men were going down and coming up in order that the current might be reduced for the time being. The company had provided a number of lanterns at intervals from top to bottom to afford sufficient light to guide the men out in case their lights should be extinguished, and as there was evidently no violation of the law, I so pronounced and left them to fight it out among themselves. May 26th I was called back and Chief Inspector R. M. Haseltine was sent for, the miners and company both desiring his presence, the miners still being out. As Mr. Haseltine was in Chicago, I sent for Assistant Inspector Alexander Beattie, of the Second District, who responded at once. After viewing the mine and hearing both versions of the controversy, Mr. Beattie agreed with me in the opinion that the law was being complied with, and that we had no ground for action. Mr. Wainwright was present and held a meeting with the men later in the day, at which time they agreed to go to work. September 12th I tested the scales and found them from five to ten pounds light. I left my test weights with them in order that they might test them after being overhauled. Seventy miners and twenty day hands are employed with D. J. Harry, superintendent, and John Price, mine boss.

RIVERTON

Is a drift opening to the No. 4, commonly called the Limestone-seam, and is located eight miles east of Wellston, on the Buckeye Branch of the C., H. & D. R. R. It is owned and operated by the Riverton Coal Company, of which H. A. Gimperling is superintendent. When last visited about seventy-five men were employed when the mine was in operation, but I found it idle and no inspection was made.

ELIZA

Is owned and operated by the Eliza Coal Company, and is located at Wellston. Forty miners and sixteen day hands are employed, with John J. James in capacity of superintendent and mine boss. November 25th I tested the scales and found them accurate. When visited December 14th the mine was in fair condition and the roads were good. Mr. Comer, a miner, was injured on that date by a fall of draw slate. He had fired a blast and knocked out his timber which he neglected to reset. While at work under the loose roof it gave way, and it was supposed at the time that his injuries were fatal, but he has since recovered. Two subsequent visits found the mine idle and no inspection was made.

MILTON

Is the property of the Milton Coal Company, and is located in the town of Wellston on the B. & O. S. W. R. R. When visited December 8th, two sets of scales were tested, of which the local scale was found accurate while the shipping scale was twenty-five pounds light and heavy on the same draft, due to the action of the wind on the weigh box. At a subsequent test both sets were found weighing accurately. During the year check doors were erected on the main east entry and new doors placed on the south and west entries. Stoppings on the east entries on the south were repaired and break-throughs between main east entries closed. At the close of the year the ventilation was deficient throughout the mine and an air shaft was being sunk. When completed a fan will be erected and stairway built. Sixty miners and twenty-six day hands are employed, with T. J. Morgan, superintendent, and Geo. W. Davis, mine boss.

JACKSON COUNTY NO. 1

Is owned and operated by the Jackson Coal Company of Wellston, O., and is situated in Wellston. Eighty miners and twenty-five day hands are employed, with T. J. Morgan, superintendent, and J. B. Palmer, mine boss. I tested the scales December 16th and found them accurate. January 13th the air-shaft was frozen solid and the fan stopped. The ice was being removed as fast as possible. On the 27th there was a great loss of air between the shaft and workings which could not be accounted for. Subsequently a door was placed on the first right entry and the air reversed, but the ventilation was not yet satisfactory and a force of men was at work night and day making the necessary improvements. Safety catches had been attached and a speaking tube put in. May 31st a check door was ordered on the Ramsey entry at the second cut-off and one on the Millhuff entry at the first cut-off. Also a door to be erected at the cut-off and a trapper placed there. At the close of the year the ventilation had been greatly improved and the mine was in very fair condition throughout.

STANDARD

Is the property of the Standard Coal Company of Jackson, O., and is situated at Glen Roy, on the C., H. & D. and O. S. Rys. This mine has always been found in very fair condition. The scales were tested November 9th, and those on the O. S. side were found to be accurate, while those on the C., H. & D. side were ten pounds light on a draft of one hundred and fifty pounds. I notified them to make the necessary repairs and they immediately complied. M. D. Jones is superintendent, and Joseph Harper, mine boss.

EMMA

Is located at Glen Roy on the C., H. & D. and O. S. Rys., and is the property of the Emma Coal Company. Forty miners and twenty-seven day hands are employed with Edwin Jones, superintendent, and V. E. Sullivan, mine boss. When visited it was found in fair condition, the roads having been greatly improved and the ventilation was better than at any time previous. All dangerous roof on the entries had been removed and other parts securely timbered.

NORTHERN

Is owned and operated by Jones, Morgan & Armstrong, of Jackson, O., and is situated at Glen Roy, on the C., H. & D. and O. S. Rys. This mine has always been found in very fair condition. During the year a slope has been sunk on the north side, to be used as an escapement way. This was necessitated by the fact that all of the workings on the north side of the mine are on the opposite side of the valley from where the shaft is located, and there is but little more than twenty feet of cover over the main north entries. At this point there is a swale, and should the entries let go while there is any body of water on the surface, all of those employed on the north side would be cut off from escape. The sinking of the slope provides a means of ready access to the surface. Sixty-five miners and twenty-eight day hands are employed with M. Morgan, superintendent, and D. L. Jones, mine boss.

JONES & MORGAN NO. 3

Is a slope opening located near Glen Roy; owned and operated by Jones & Morgan, of Jackson, O. Fifty miners and twenty-five day hands are employed with M. Morgan, superintendent, and D. C. Jones, mine boss. An accident occurred at this mine August 7th whereby Wm. Etheridge was slightly injured by a fall of roof at the bottom of the slope. Two empty cars got away from the top, and jumping the track, knocked out some timbers at the bottom with the above result. This is the accident of which a Coalton newspaper correspondent, possessed of a very flexible imagination, in wiring Columbus and Cincinnati papers, reported three men instantly killed. The mine is generally in fair condition.

CENTRAL

Is located on the O. S. R. R. midway between Glen Roy and Coalton, and is owned and operated by the Central Coal Company, of Jackson, O. Twenty-eight miners and nine day hands are employed with Geo. J. Jones, superintendent, and Thos. Hughes, mine boss. When visited March 8th I ordered a door placed on the third right entry, and the stoppings repaired. Subsequently, I found the mine in fair condition throughout, the security and ventilation being good.

JONES NO. 1

Is the property of the Jones Coal Company, of Jackson, O., and is located near Glen Roy, on the C., H. & D. R. R. It is a shaft opening and has fan ventilation, and has always been in good condition. It is under the management of John E. Jones, superintendent, and Geo. J. Londerger, mine boss.

JONES NO. 2

Is also the property of the Jones Coal Company, and is located on the O. S. R. R. at the Ada switch. It is a slope opening with fan ventilation, and has usually been found in very fair condition, but when last visited was idle, not having run any for some time, and was not inspected. John E. Jones, superintendent, and H. C. Chapman, mine boss.

GLEN NELL

Is located about three miles west of Coalton, on the C., H. & D. R. R. It was formerly the property of the Glen Nell Coal Company, but has recently changed hands and is now owned and operated by the Phoenix Coal Company, with Marion Kissinger, superintendent, and Wm. Black, mine boss. December 6th the scales were tested and found accurate. The ventilation has always been very good here as the mine is comparatively new and covers but a small extent of territory, but I found the doors being neglected and brattices breaking down. The roof on the main entry was very bad in places, and I ordered it taken down where it could not be properly secured with timber. The roads are wet and muddy, there being a great deal of water in the mine. When last visited thirty-five miners and thirteen day-hands were employed.

BUCKEYE

Is owned and operated by the Buckeye Coal Company, of Coalton, O., and is located about two mile west of Coalton on the C., H. & D. R. R. It has usually been found in very fair condition, but when last visited it was idle and not inspected. December 6th the scales were tested and found accurate. Marion Kissinger is superintendent and E. Rhodes mine boss.

HALL'S NO. 4

Is the property of John F. Hall, and is situated near Coalton on the C., H. & D. R. R. When visited January 5th the pillars were being taken out preparatory to abandonment, and on June 1st it had almost been exhausted, only ten men being employed. October 23d everything had been removed and it was abandoned. Isaac Hall, superintendent.

HAZEL

Is a new mine just opening out, and employs but four men. It is the property of John F. Hall, and is located near Coalton on the C., H. & D. R. R. An air-shaft has been sunk, but no furnace has yet been built. Isaac Hall is superintendent and Edward Brohard mine boss.

GARFIELD

Is located on the Garfield switch of the C., H. & D. Ry., near Coalton, and is leased and operated by William Jones, who acts in the capacity of superintendent and mine boss. It has usually been found in fair condition, except when last visited, at which time the entrance was ordered retimbered and lagged.

POLING

Is located near Coalton on the C., H. & D. Ry., and is the property of the Poling Coal Company, of Dayton, O. Has been abandoned during the year.

POLING NO. 2

Is also the property of the Poling Coal Company, is located on the Garfield switch of the C., H. & D. Ry., and is under the supervision of William Ellis, and Lee Shook is mine boss. It is a new mine just opening out. An air-shaft has been sunk, a furnace built and a second opening made.

VICTOR NO. 1

Is owned and operated by Gosline, Barbour & Company, of Toledo, and is situated near Coalton, on the C. H. & D. Ry. It was opened some years ago but suspended, owing to the coal being so thin that men could not be had to work it. Recently it has been reopened and cleaned up, and is in good condition. Only six men are employed with T. J. Evans, superintendent, and E. T. Davis, mine boss.

VICTOR NOS. 2, 3 AND 4

Are all located near No. 1, and have all been abandoned during the year and everything removed.

BAT'S REST

Is a new mine located on the C., H. & D. Ry., and is operated by Brown & Williams. Nine miners are employed with Joseph Brown, superintendent.

HIPPELS

Is owned and operated by the Hippel Coal Company, of Coalton, Ohio, and is situated near Coalton on the O. S. Ry. Forty-five miners and fourteen day hands are employed with W. D. Hipple, superintendent, and James Gascoyne, mine boss. When visited January 4th, two doors were ordered placed on rooms on the fourth left entry and canvas for bottom of door on the main entry. There was some bad roof on the entry which was ordered taken down. The scales were tested and found accurate January 25th. On a subsequent visit I found the mine idle and made no inspection.

COALTON COAL COMPANY NO 3

Is the property of the Coalton Coal Company, and is located near Coalton, on the O. S. Ry. When inspected January 6, a new door was needed on the main entry near the furnace, and doors on rooms on the Wheeler and first right entries which were ordered. Some loose roof on the entries was also ordered taken down. At that time the Schumate entry was being driven outside with the intention of making it the intake which will greatly improve the ventilation when completed. January 25th I tested the scales and found them accurate. Subsequently, I found the second opening completed and the ventilation greatly improved. Fifty miners and sixteen day hands are employed. The mine is under the efficient supervision of Norris Cameron who acts in the capacity of superintendent and mine boss.

ANNUAL REPORT

GRACE

Is owned and operated by the Chapman Coal Company, of Jackson, and is located on the Ada switch of the O. S. Ry. It is a shaft opening employing sixty miners and twenty day hands, with John E. Hayes, superintendent, and Edmund Gregory, mine boss. It was visited twice during the year and has always been found in first-class condition.

HURD SHAFT

Is situated about one-half mile from Grace on the same line of the railway, and is the property of the Hurd Coal Company, of Jackson. It is under the management of Samuel Swift and Samuel Knights, mine boss, and is generally found in very fair condition when in operation.

M'KITTRICKS

Is an old mine almost exhausted and employs but a few men. It is located on the Ada switch of the O. S. Ry. It is a slope opening and is leased and operated by James Harper, of Jackson, Ohio, who acts in the capacity of superintendent and mine boss.

OHIO

Is a slope opening located at the Ada switch, and is the property of the Ohio Coal Company, of Jackson. When visited it was found in a fair condition but had suspended operations at the close of the year. N. M. White is superintendent, and C. Smith served in the capacity of mine boss when the mine was in operation.

HURD SLOPE

Is owned and operated by the Hurd Coal Company, and is located at Ada switch, on the O. S. Ry. When visited it was found idle, having suspended operations some time previous for an indefinite period, or until such time as improvement of the coal trade might justify a resumption. It is under the management of Samuel Swift.

SPRINGFIELD

Is owned and operated by the Chapman Coal Company, and is located on the Springfield switch of O. S. Ry. It is a drift mine with furnace ventilation and employs thirty-five miners and twenty-one day hands, with John E. Hayes, superintendent, and Wm. Eismagle, mine boss. When visited it was found in fair condition.

SPRINGFIELD NO. 2

Is a new mine opened during the year, and is the property of the same company and under the same management as No. 1, near which it is situated, the coal all being handled over the same tippie. It is a drift opening with furnace ventilation and is in good condition. Thirty-five miners and six day hands are employed.

BENTON SLOPE

Is located at Ada switch, and is owned and operated by the same company as the Springfield mine. The scales were tested November 25th and found accurate. When visited June 29th only twelve men were employed and the mine was in rather poor condition and very little work was being done. John E. Hayes is superintendent, and Charles Holmes, mine boss.

CHAPMANS

Is situated near Chapman on the O. S. Ry., and is also the property of the Chapman Coal Company. It is a drift opening having the furnace ventilation and has always been found in very fair condition. Sixty-five miners and nineteen day hands are employed, with John E. Hayes, superintendent, and Jacob Houser, mine boss.

KEYSTONE

Is a drift opening located on the Springfield switch of the O. S. Ry., and is also the property of the Chapman Coal Company. It was found in poor condition the roads being bad and doors and brattices out of order, all of which were ordered repaired. Fifteen miners and three day hands are employed with John E. Hayes, superintendent, and C. Smith, mine boss.

WORTH

Is located on the Springfield switch, and is also the property of the Chapman Coal Company. It is in fair condition and employs twenty-eight miners and three day hands, with John E. Hayes, superintendent, and C. Smith, mine boss.

ECLIPSE NO. 1

Is owned and operated by the Eclipse Coal Company, of Jackson, and is situated on the Springfield switch of the O. S. Ry. It is a small mine with furnace ventilation and works irregularly.

ECLIPSE NO. 2

Is the property of the same company, and is situated near the No. 1, and the coal is handled over the same tipple.

FORREST

Is located on the Springfield switch of the O. S. Ry., and is the property of the Jackson Hill Coal Co., of Jackson, Ohio. It is a drift opening with furnace ventilation and is usually in fair condition. Edwin Jones is superintendent, and J. D. Richards, mine boss.

PRICE

Is owned and operated by Gosline, Barbour & Company, of Toledo, Ohio, and is located on the Price switch of the O. S. Ry., near Jackson, Ohio. It is a drift mine with furnace ventilation and is usually found in very fair condition. W. H. Owens is superintendent and general manager.

PRICE BROS. NO. 1

Is located on the Price switch of the O. S. Ry., about two miles from Jackson and is the property of Price Bros. It is a small mine employing but a few men and has furnace ventilation. J. Price is in charge.

PRICE BROS. NO. 2

Is located near No. 1, and is owned by the same firm and is under the same management. It is also a small mine.

DIAMOND

Is situated on the Price switch of the O. S. Ry., and is operated by the Diamond Coal Company, of Jackson. It is a drift mine with furnace ventilation and employs fifteen miners and three day hands, with E. O. Roberts, superintendent, and J. S. Jones, mine boss.

STAR NO. 3

Is the property of the Star Furnace Company, and is located at Jackson, on the O. S. Ry. It is under the supervision of Henry Price and has always been found in good condition.

HURON

Is owned and operated by the Globe Iron Company, and is located at Jackson. When visited July 12th it was found in poor condition for air and I was unable to obtain a measurement at the face of any of the entries. I requested that an air shaft be sunk at the head of the works and that it be commenced at once. September 1st the mine had closed down owing to the furnace having gone out of blast. Subsequently operations were resumed with nine men at work and I notified the company to employ no more until they had completed the air shaft and improved the ventilation. E. C. Crandles is superintendent, and J. T. Jenkins, mine boss.

ÆTNA FIRE BRICK CO.

Is a small mine located at Oak Hill on the B. & O. S. W. R'y and employes but a few men. J. J. Jones is superintendent and A. Smith, Jr., mine boss.

TROPIC

Is the property of the Tropic Iron Company of Jackson, O., and is located about three miles west of Jackson on the O. S. R'y. It is a drift opening and has fan ventilation. Forty miners and thirteen day hands are employed with Miles Jones, superintendent, and Daniel Howe, mine boss. When visited it was found in fair condition throughout.

OAK HILL NOS. 1, 3 AND 4

Are all the property of the Oak Hill Fire Brick Company of Oak Hill, O., and are under the management of J. J. Thomas, superintendent, and E. J. Evans, mine boss. They are small mines and produce both coal and fire clay, all of which is consumed by the company at their large fire brick plant located near by.

THOMAS

Is a small domestic mine operated by J. H. Thomas and is located near Oak Hill. Not more than two men are employed at any one time. J. H. Thomas is in charge.

OMANS

Is a small domestic mine located at Coalton and works irregularly. It is owned and operated by Alex. Oman who is in charge.

RHODES

Is a small domestic mine operated by Thomas Rhodes and is located at Coalton. From two to five men are employed with Thos. Rhodes in the capacity of superintendent and mine boss.

SHOOK

Is also a small domestic mine located at Coalton and is owned and operated by Daniel Shook who is in charge.

ALMA

Is a new mine situated near Glen Roy on the C., H. & D. R'y. It is shaft opening into the No. 2 seam and has been opened and equipped in a splendid manner. It is the property of the Alma Coal Company, of which Chas. Davis is superintendent and L. Hutchinson mine boss.

ÆTNA

Is the property of the Ætna Coal Company of Jackson, Ohio, and is located at Lincoln Furnace on the O. S. R'y extension about six miles from Wellston. It is a shaft opening into the No. 4 seam which is reached at a depth of seventy feet. It has just been sunk and is not yet equipped for operation. Ed. Jones is superintendent and Stephen G. Anderson, mine boss.

VINTON COUNTY.

HANGING ROCK

Is a new mine located near Lincoln Furnace on the O. S. R'y, and is the property of the Hanging Rock Coal Company of Jackson. It is a shaft opening into the No. 4 seam, commonly called the Limestone coal, which is here reached at a depth of seventy feet. When visited the machinery was just being placed in position and the hoppers had not yet been completed. Edwin Jones has general supervision of the work.

INGHAMS

Is located on the B. & O. S. W. R'y at Inghams and is leased and operated by W. A. Foster who acts as superintendent, with L. C. Barlow mine boss. It is a small mine employing thirteen miners and three day hands and when last visited was in fair condition.

BROWNS

Is a small domestic mine situated near McArthur and employs two men when in operation. C. Brown is owner and superintendent.

ZALESKI NO. 4

Is owned and operated by the Zaleski Company and is located near Zaleski on the B. & O. S. W. R'y. When visited December 2d, I found it in fair condition except the second right entry where the air was sluggish. An air course was being driven which I found completed on my next visit and the mine was in fair condition throughout. Fifteen miners and three day hands are employed with Robt. Thompson superintendent and T. L. Watkins mine boss.

ZALESKI NO. 6

Is also the property of the Zaleski Company and is situated near No. 4, both mines using the same tippie. During the year an air shaft has been sunk, a new furnace built and the ventilation is good. With the exception that the roads are wet and muddy, the mine is in very good condition. Forty-five miners and fourteen day hands are employed with Robert Thompson superintendent and T. L. Watkins mine boss.

ELKO

Is owned and operated by the Maderia Coal Company of Chillicothe and is located at Vinton Station on the B. & O. S. W. R'y. Twenty-three miners and fifteen day hands are employed with John Hall superintendent and William Rankin mine boss. It is usually found in good condition except the roads which are wet and muddy. During the early part of the year all of the east entries struck rock and were still in it when visited.

RACCOON

Is located at Minerton on the C., H. V. & T. R'y, and is owned and operated by J. L. Lawler. It is a drift opening into the No. 4 seam and has furnace ventilation. Thirty miners and eight day hands are employed with J. L. Lawler superintendent and Geo. Kavanaugh mine boss. When visited April 7th rooms Nos. 2, 3, 4 and 5 on the straight west entry were stopped as they were in advance of the air. Otherwise the mine was in fair condition.

STAR NO. 2

Is the property of E. W. Keck and is situated near Hawks Station, on the C., H. V. & T. R'y. When last visited it was in fair condition and employed fourteen miners.

and three day hands with E. W. Keck superintendent and mine boss. July 25th the air was sluggish at the face of the main entry where a break-through was being made to bring the air up to that point.

SMITH

Is a small domestic mine situated near McArthur and is under the supervision of William Smith who has control of it.

ROBINETTS

Is a small domestic mine located at McArthur and is in charge of Henry Robinett who operates it.

CLARKS

Is a small domestic mine located at Zaleski, and is operated by Elmer Chaffin who is in charge. Five miners are employed when the mine is in operation. When last visited it was in fair condition.

HARTLEYS

Is a small domestic mine located near Hawks Station and is operated by A. Hartley. Not more than two miners are employed at any time.

HAWKS

Is a small domestic mine owned by Oscar Hawk and when in operation employs two miners. It is located at Hawks Station on the C., H. V. & T. Ry.

ARNOLDS

Is operated by Austin Gibbs and employs two men when in operation. It is located near Zaleski.

SCIOTO COUNTY.

ENTERPRISE

Is located at Gephart on the Portsmouth branch of the B. & O. S. W. R'y. It was in operation but a short time during the year and is now abandoned.

ENTERPRISE NO. 2

Is the property of R. H. Cook and Son and is located near the old mine. It is a new opening and is not yet in full operation. An air shaft has been sunk and a fan is being erected. R. H. Cook is superintendent.

MILL NO. 2

Is owned and operated by the South Webster Fire Brick Company and is located about three miles south of South Webster. It is a clay mine and when visited was found idle, not having been in operation for several weeks. Geo. Edmunds is superintendent and Samuel McNaughton, mine boss.

SHIPPING NOS. 1 AND 2

Are located near Mill No. 2 and are the property of the same company and under the same management. Both were found idle when visited.

SCIOTO NOS. 1, 2, 3, 4, 5 AND 6

Are all small mines situated near Scioto Furnace and are the property of the Scioto Furnace Coal & Iron Co. Not more than two men are employed in any of them when in operation and all were found idle when visited. A. T. Holcomb is superintendent.

OHIO FURNACE.

Is an iron ore mine located at Gervais and is owned by Willard & Creighton. It was abandoned during the year.

OHIO FURNACE NO. 2

Is located near the old mine and employs twenty miners and three day hands. It is a new mine worked on the single entry system and has furnace ventilation. When visited it was found in a fair condition except on the first right entry where doors were needed on two rooms to carry the air forward. F. W. Doty is superintendent and Vinton Lambert, mine boss.

OHIO FURNACE NO 3

Is also the property of Willard & Creighton and is a new mine just opening. When opened out it will connect with No. 2 and is under the same management.

JEFFERSON COUNTY.

BRILLIANT

Is located at Brilliant Station on the Ohio River about nine miles below Steubenville. When visited September 20th it was found idle, having suspended some time before.

BUSTARD

Is the property of the Jefferson Coal & Iron Co., of Steubenville, and is located near that city. When visited September 20th, it was found idle. When in operation about thirty-five men are employed with John Kelly superintendent and mine boss.

HIGH SHAFT

Is situated at Steubenville and is the property of the Steubenville Coal and Mining Co. It was visited September 19th and found in good condition. Sixty-five miners and thirty-six day hands are employed, with William Smirthwaite superintendent and Geo. Arthur mine boss.

ATHENS COUNTY.

HAMLEY RUN

Is located at Hamley Run on the C., H. V. & T. railway and is the property of Chicago and Ohio Coal & Car Co. It was visited July 19th, at which time the scales were tested and found accurate. T. N. Black is superintendent and G. C. Smith mine boss.

TUSCARAWAS COUNTY.

BROCK HILL

Is located at Barnhill and was visited May 5th in company with Chief Inspector R. M. Haseltine and District Inspectors Thos. H. Love, Ebenezer Lewis, W. H. Turner and John P. Jones. The mine was in poor condition being badly ventilated and without a second opening. John P. Jones, in whose district the mine is located, had begun proceedings in the courts to restrain the company from operating the mine, the full details and result of which will no doubt be found in his report.

REPORT OF ALEXANDER BEATTIE,

Inspector of the Second District, from Nov. 15, 1892, to Nov. 15, 1893.

Hon. R. M. HASELTINE, Chief Inspector of Mines :

DEAR SIR: In accordance with the mining statutes of Ohio, I beg the honor to submit herewith my second annual report as inspector of the second district comprising the counties of Athens, Gallia, Lawrence, Meigs and Washington.

The mining industry has been greatly retarded in this district during the year by reason of local strikes, shut downs and other dissensions, and this will account for the seemingly low number of visits made.

Although there are nine mines in this district which generate large quantities of light carburetted hydrogen gas, but two minor accidents occurred during the year which were attributable to this cause, and I wish to commend the superintendents and mine bosses having these mines in charge for their skill and vigilance in this matter.

During the year there were thirty-nine accidents, three of which resulted fatally. Of these, one occurred at the Hamley Run mine, one at the Black Diamond mine, both of Athens county, and one at the Pine Grove mine of Lawrence county. The first two were caused by falls of slate and the last by a fall of clay.

There are four great sources of accidents in mining, viz.: Falls of roof and coal contact with mine cars and explosions of powder. These are to a great extent beyond the control of the mine bosses or the inspector and the miner should learn that upon himself alone depends his security. He should appreciate that only extreme and unremitting vigilance on his part can insure protection and security to the property of his employer and the lives of his fellow workmen.

The most hazardous duty I was called upon to perform during the year was in connection with the fire at the Phoenix No. 1 mine at Jacksonville, Athens county, an account of which is given in another portion of the report. Frequent and ruinous losses to mining property are attributable to this element, and the difficulties encountered in meeting a danger of this kind and the attending peril to those engaged could be reduced in a great measure by a little foresight on the part of those interested in providing the necessary material for such an emergency. I would earnestly advise all operators and owners to keep a supply of appropriate material constantly on hand and believe that the importance of this suggestion cannot be easily over estimated.

My official duties during the year have been rendered very pleasant by the cordial character of the relations existing between the department and the miners and operators of my district, for which I feel sincerely gratified, and I also desire to acknowledge my obligations to you for the kindnesses shown me and for your indispensable counsel and co-operation.

Respectfully,

ALEXANDER BEATTIE,
Inspector Second District.

Nelsonville, O., Nov. 15, 1893.

ATHENS COUNTY.

DALETON

Is a new shaft opening one hundred and thirty-five feet in depth which pierces the No. 6 seam of coal. It is located at Rawndale on the B. & O. S. W. railway four miles west of Athens on the Allison farm, and is operated by the Athens Coal Co. They have purchased the plant known as the Allison shaft and made it an auxiliary to the new one. It is equipped with electrical cutting machines and is worked on the double entry system. On August 5th, carburetted hydrogen gas suddenly made its appearance at the face of the dark west entry and L. P. Llewellyn and Ezra McGrath, two miners, were painfully burned by going into it with open lamps. When visited August 7th, I requested them to employ a competent person to examine the working places every morning before the men were allowed to enter and this person to report the condition of the room and the roads leading thereto. I also asked that he be furnished with a safety lamp for the purpose. Twenty miners and eleven day hands are employed under the management of Edward Minir.

ALLISON

Is a shaft opening one hundred and twenty-one feet in depth made into the No. 6 seam of coal. It is located near the Daleton and is owned by the Athens Coal Co. and is used as an air shaft and escapement way for the Daleton.

BROADWELL.

This mine is located in a town of the same name on a line of the T. & O. C. extension. It is a drift opening made into the No. 8 seam of coal and is operated by the Federal Mining Co. It has worked but little during the year. When visited August 21st the air current was insufficient owing to there being no fire in the furnace. I requested one kindled and maintained whenever the mine was working. Twenty-four miners and two day hands are employed. J. A. Frost is superintendent and G. W. Haybron mine boss.

FEDERAL VALLEY NO. 1

Is a drift opening made into the No. 8 seam of coal and is located at Wakeup. It is owned and operated by J. R. Wickham who is also the general manager. Seven miners and one day hand are employed. Was visited August 21st when it was found to be suspended.

FEDERAL VALLEY NO. 2

Is located at Utley on the Marietta extension of the T. & O. C. railway. It is a drift opening made into the No. 8 seam of coal and was formerly owned and operated by the Federal Valley Coal Co., but is now the property of the Marietta Run Coal & Coke Co. This mine has been undergoing repairs nearly all the year, being equipped with machinery for rope haulage, air compressors and cutting machines and is now the model mine of the Federal Valley. Benjamin Hill, a gentleman of long experience and excellent judgment, is in charge. Thirty miners and twenty-three day hands are employed.

MIRKLE

Is a new mine in the process of opening. It is located at Wakeup on the Marietta extension of the T. & O. C. railway and is operated by E. O. Cole. It is a slope driven into the No. 8 seam of coal. Two miners are employed.

BERN

Is a drift opening made into the No. 8 seam of coal. It is operated by Cole Bros. When visited August 21st it was idle and I was informed that it had been suspended during the year. Three miners and one day hand are employed when the mine is working.

BLACK DIAMOND.

This mine is owned and operated by the Black Diamond Coal and Coke Co. It is a drift opening made into the No. 8 seam and is situated at Lathrop on the Marietta extension of the T. & O. C. railway. It is equipped with electrical mining

machines, has fan ventilation and is worked on the double entry system. When visited August 22d, with the exception of a few needed break-throughs which were ordered made, it was in good condition. George Pelok, a Hungarian miner, was fatally injured by a fall of slate in the mine on October 24th. An investigation showed the accident was the result of carelessness on the part of the miner as it was proven that he had repeatedly been warned of his danger. Sixty miners and nine day hands are employed. James Fox is superintendent and James Green mine boss.

M'KINNEY

Is located at Lathrop on the T. & O. C. extension and is operated by the McKinney Coal Co. of Zanesville, under the supervision of Thos. Opie. It is a drift opening made into the No. 8 seam, is worked on the double entry system and has fan ventilation. It was visited May 8th and August 22d and being idle each time, it was not inspected. Forty-five miners and six day hands are employed.

OAK DALE

Is located about two miles west of Glouster on the Buckingham branch of the T. & O. C. railway and is operated by Lampman & Harris. It is a drift opening ninety feet in depth made into the No. 6 seam of coal. This mine is equipped with Jeffrey's electrical plant and the Jeffrey cutting machine is used to mine the coal. It is worked on the double entry system and has fan ventilation. When visited July 11th I requested several break-throughs made in rooms and obstructions removed from the bottom of the air shaft and several doors and brattices repaired. The mine was generating carburetted hydrogen gas and I ordered a competent person employed to examine every working place each morning and report its condition before any person was allowed to enter. Seventy miners and twenty day hands are employed. L. D. Lampman is superintendent and B. F. Argust mine boss.

PHOENIX NO. 1

Is located at Jacksonville, and is a shaft opening one hundred and twenty feet deep made into the No. 6 seam of coal. It is owned and operated by the Phoenix Coal Co., of Toledo, under the management of Thos. Corcoran. This mine has fan ventilation and is worked on the double entry system and is equipped with a Schillor self-dumping hoisting cage which is giving good satisfaction. Nine visits have been made during the year, namely: March 30th and 31st, April 1st, 2d and 3d, June 26th, August 4th, and September 11th and 12th. On the first visit I found a fire raging on the first west entry and the flames shooting from the jaws of several rooms showing that the fire was threatening the destruction of the mine. I also found the mine boss, Mr. Richards lying on a board in the mine sick and exhausted from his efforts to extinguish the fire. By his request I assumed charge of a small force of men, all that could be persuaded to enter. They were compelled to go through great volumes of smoke and the opinion prevailed that there would be an explosion from a supposed accumulation of carburetted hydrogen gas. We reversed the air current and made the hoisting shaft the intake and the fan shaft the outlet, thus forcing the smoke from the bottom of the main shaft and out through the fan shaft. We were then enabled to divide the main entry by erecting a wooden brattice which extended from the bottom of the hoisting shaft to the first west entry. This was done for the purpose of conducting the foul air to the outside on one side of the brattice and leaving the other for ingress and egress. After completing this work we again reversed the air current, making the main

shaft the outlet and the fan shaft the inlet for the air. This was necessary in order to turn the full volume of air against the smoke and to force it back thus enabling us to reach the fire. We were delayed for some time for want of material. Mr. W. P. Rend appeared about this time and being explained the imminent danger which was rapidly increased by the delay, he at once assumed charge of the supply department and the work proceeded. After a five days' struggle, the fire was driven into the smallest possible space and held there until all the openings leading to the burning section had been bratticed with strong brick walls. The air supply being thus entirely cut off, the fire was left to die out. The work was much facilitated by the able assistance of R. H. Miller, inspector of the third district, whose experience and advice was much appreciated. On April 6th, although the mine was idle, I examined the walls surrounding the fire and found them in good condition.

As the mine was idle on June 26th and August 4th, no inspections were made. September 11th and 12th I requested several break-throughs made in rooms and the mine was otherwise in good order. One hundred and ten miners and twenty-seven day hands are employed. J. D. Richards is mine boss.

PHOENIX NO 2

Is located one mile west of Glouster on the Buckingham branch of the T. & O. C. R'y and is operated by the same company as the No. 1 mine. It is under the personal supervision of Lewis Jones, a man of excellent judgment. It is a shaft opening one hundred and ten feet deep into the No. 6 seam, is worked on the double entry system and has fan ventilation. When visited July 13th, it was found in excellent condition. Two hundred and forty miners and forty-four day hands are employed.

NO. 10.

This mine is situated two miles west of Glouster and is operated by the Sunday Creek Coal Co. Fred Miller is superintendent and Chas. E. Smith mine boss. It is a shaft opening made into the No. 6 seam of coal, is worked on the double entry system and has fan ventilation. Mining machines are used for mining the coal. On my first visit August 1st, I requested several break-throughs made in rooms. As room No. 64 was generating carburetted hydrogen gas, I ordered the miners to cease working there until a break-through could be made to remove the gas. On October 28th by request of the mine committee, I tested the scales and found them accurate. This mine furnishes employment for one hundred and ninety miners and fifty-four day hands.

NO. 16

Is situated on Mud Fork about two miles west of Glouster on a branch of the T. & O. C. R'y, and is operated by Courtright and Kistler of Columbus. It is a shaft opening eighty-five feet deep made into the No. 6 seam of coal. It is worked on the double entry system and has fan ventilation. I visited this mine on July 12th and with the exception of a few break-throughs in rooms which I requested made, it was in good condition. Mr. Thomas, a gentleman of long experience and excellent judgment has entire charge. Two hundred miners and thirty-eight day hands are employed.

BRIAR RIDGE OR NO. 6.

This mine is located at Glouster and is owned and operated by W. P. Rend & Co., of Chicago, Illinois. It is a shaft opening made into the No. 6 seam, is worke

on the double entry system and has fan ventilation. Machines are used for mining the coal. When visited July 14th, the mine was undergoing repairs with a view of resuming operations after a suspension of several months. On July 31st I found it idle. October 10th, I requested several break-throughs made in rooms and brattices replaced between entries. The fan engine had been repaired as previously requested. One hundred miners and thirty-nine day hands are employed. Thos. Corcoran is superintendent, and Adam McDonald, a gentleman of experience and efficiency is in charge.

NO. 4.

This mine is located at Jacksonville and is owned and operated by the same company as the No. 6, and under the immediate supervision of David E. Williams. It is a shaft opening made into the No. 6 seam of coal, and is equipped with rope haulage, fan ventilation and mining machines. Although there are two openings to this mine neither of them are available as a means of egress and ingress, in the meaning of the law. This has been a source of considerable uneasiness to the department and frequent requests were made to the owner to sink another shaft and erect a suitable stairway therein, for an escapement way. This he has promised to do. When visited June 25th, it was idle. On August 2d, I requested several break-throughs made and posts set in rooms. Also some obstruction removed from the bottom of the air shaft. October 11th I found carburetted hydrogen gas accumulating at the face of the north dark west entry and ordered a brattice placed along the side of the entry to conduct the air to the gas and force it out of the entry. Two hundred miners and thirty day hands are employed.

CRESCENT OR NO. 24

Is situated near Jacksonville on a line of the T. & O. C. R'y. It is a shaft opening made into the No. 6 seam of coal, is worked on the double entry system and has fan ventilation, and an electrical motor haulage. It is operated by the Crescent Coal Co., of Jacksonville. On my first visit June 27th, I found the mine suspended owing to the insolvency of the company. On my last visit August 3d, operations had been resumed under the firm name of the Northern Fuel Co. With the exception of a few break-throughs and timbers which were needed, the mine was in good condition. One hundred and twenty-five miners and thirty-three day hands are employed, under the personal supervision of John Moorefield.

OLD HICKORY

Is located near Jacksonville and is operated by the Wolf Coal Co. It is a shaft opening made into the Bailey Run seam of coal. Two visits were made during the year but on each date the mine was found idle. I am informed that it has been idle all the year.

SPRINGFIELD NO. 1.

This mine is located one mile north of Nelsonville and is owned and operated by the Springfield Coal & Ice Co. It is a drift opening into the No. 6 seam. Two visits were made during the year. On my first visit December 21st, I found eighteen miners strung along the main entry pillars for a distance of three hundred feet, and engaged in working out the pillars. I requested the mining out of the pillars between the north terminus and the escapement way discontinued as it was endangering the workmen at the north end of the work. On April 1st I found the mine abandoned.

SPRINGFIELD NO. 2.

This mine is located near the No. 1, and owned and operated by the same company. W. F. Bort is superintendent, and Joseph Moore mine boss. This is a new mine and the brattices and furnace necessary to conduct the air to the working places had not been constructed; on my first visit on November 28th, I requested them erected as soon as possible. December 16th, I found my requests complied with and the mine in good condition. Inspections were made April 10th, May 24th and September 18th and the mine found in good order on each visit. The scales were tested three times during the year. On April 11th they were accurate; October 7th, a small discrepancy was discovered in favor of the miners; this was soon adjusted. On November 6th I was called upon to test the new weighing machine, known as the Koehnes Automatic scale. It registers the amount of coal going over the scale without the aid of a weighman. This was found to be correct. Eighty five miners and thirteen day hands are employed in the mine.

SEDALIA.

This is a slope opening made into the No. 7 seam of coal. It is located at Glouster and is operated by William Palmer. Double entry system, furnace ventilation and rope haulage are used. Four visits were made during the year, viz.: February 22d, March 13th, July 10th and October 9th. On the first two visits I found the mine idle. On July 10th I made an inspection of it and found that the means of ventilation were not sufficient as they were conducting steam from the surface by means of a pipe running to a pump at the bottom of the air shaft. I suggested the placing of the steam boiler at the bottom of the shaft and the fire under the boiler would be a good substitute for a furnace. On my last visit I found the previous requests complied with and the mine in good condition. Forty-five miners and eight day hands are employed. William Palmer is superintendent, and Thos. Mooney mine boss.

GREENBRIAR

Is located at Nelsonville and is operated by C. L. Poston & Co. It is worked on the double entry system, has fan ventilation and rope haulage. When visited November 17th, I found the ventilation very unsatisfactory. I requested several breakthroughs made in rooms and a check door placed on the eighth west entry between rooms Nos. 7 and 8. On January 27th and 31st, the mine was in much the same condition owing to the fan not being run to its full capacity as I had requested. On May 22d, I found the condition of the mine improved. I ordered some additional breakthroughs made in order to better distribute the air. July 7th I found the mine suspended, while on August 9th, it was in good condition. On September 5th, carbonic acid gas had accumulated on the seventh west entry. I ordered the men out of the entry as the fan was pushing the air and thereby forcing the gas from the old works to the working places. I suggested reversing the current and thus draw the fresh air first to the working places and then back to the abandoned parts. The mine is now in good condition. October 3d I tested the scales and found them in favor of the miners. I notified the company of their condition. Ninety-four miners and sixteen day hands are employed. C. L. Poston is superintendent and J. C. Millinger mine boss.

NO. 1.

This is a drift opening made into the No. 6 seam of coal. It is an auxiliary to Green Briar and is owned and operated by the same company. The coal is taken

over the same tipple. When visited September 5th, it was undergoing repairs with a view of resuming operations after a suspension of several years. It is worked on the double entry system, has furnace ventilation and employs twenty miners and one day hand.

LONE STAR.

This mine is located near and is owned and operated by the same company as the Green Briar under the supervision of Henry Ball. It is a drift opening, has furnace ventilation and is worked on the double entry system. Was visited December 6th, but was found idle and no inspection was made. On July 5th it was found in good condition with the exception of the roadways which were very muddy owing to the bad drainage. I requested them cleaned out and drained. On September 7th I found the requests complied with and the mine in good order. Four persons are employed in the mine.

OKLAHOMA

Is located near Green Briar, and is owned and operated under the same management. During the year the coal has been exhausted and the mine abandoned.

SUNFLOWER.

This is a new mine located one mile west of Nelsonville, on a line of the C., H. V. & T. Ry., and is operated by Black & Whitfield, under the personal supervision of Geo. Whitfield. It is a drift opening and the coal is used for domestic purposes. Was visited twice during the year, viz.: November 29th and January 16th, and was each time found in good order. Four miners and two day hands are employed. It has been idle since my last visit.

MINKER RUN.

Is operated by the Hocking Valley Coal Co., and is located near Nelsonville. It is worked on the double entry system, has fan ventilation and rope haulage. The coal is mined by machines operated by compressed air. One hundred and fifty miners and forty-eight day hands are employed. Nine visits were made during the year, and on each occasion the mine was found in good order. An exceedingly treacherous roof overlies the coal on the east side which needs the constant and careful attention of the company. E. A. Cole is superintendent and William Dilts mine boss.

EAST HILL.

This is a tributary of the Minker Run mine and is operated by the same company and under the same management. The coal is taken over the same tipple. The mine is ventilated by means of a fan and has rope haulage. Five visits were made during the year. On December 22d it was found unsafe owing to the exposed condition of the loose roof along the haulways. I requested operations discontinued until the roadway was made secure by setting timbers under the roof. On December 31st the mine was idle. January 11th, it was undergoing repairs in obedience to requests made on previous visit. July 6th, I found the mine abandoned.

NO. 21

Is situated at Buchtel and is the property of the C. & H. C. & I. Co. It is a drift opening made into the No. 6 seam. Double entry system and furnace ventilation are used. Ninety miners and thirteen day hands are employed. Six visits were made during the year. On the first visit, December 20th, the mine was found idle. On February 2d, the distribution of air was very poor on several of the entries and I requested check doors hung in several places and breakthroughs made in several rooms on the entries. I also ordered some obstructions removed from the air course. On February 14th, I found my requests complied with, with the exception of the check doors. This failure was caused by the company being delayed in securing lumber. The condition of the mine was noticeably improved but not yet satisfactory, and I insisted upon the material being secured at once and the improvements made. On March 21st, the same condition of affairs prevailed. I called on Mr. Furguson, the general superintendent, and explained the condition of the mine and what would be necessary to overcome the difficulty, and he promised that they should be immediately provided. On May 23d, the mine was idle and no inspection was made, and on September 14th it was found suspended, as it has since remained. Thos. Weatherburn is mine boss.

BRIAR HILL

Is a drift opening driven into the No. 6 seam of coal and located one mile north of Nelsonville, on the M. C. B. of the C., H. V. & T. Ry. It is operated by Juniper Bros. & Lampman. This mine is worked on the double entry system and has furnace ventilation. On January 24th it was idle. On my last visit, July 3d, I requested timbers set at the face of two rooms on the furnace entry; the mine otherwise was in good condition. The pillars are being drawn and the mine will soon be finished. Five miners and ten day hands are employed. A. J. Juniper is superintendent and J. T. Weekley mine boss.

COE HILL NO. 1.

This mine is located near Briar Hill and is owned and operated by the same company. Wm Stillwell is mine boss. It is a drift opening made into the No. 6 seam, is worked on the double entry system and has furnace ventilation. Was visited July 8th but was found idle as it has been all the year.

COE HILL NO. 2.

This is a new mine located near the No. 1 and is owned, operated and officered by the same parties and the coal is taken over the same tippie. Furnace ventilation is used. Three visits were made to this mine during the year. On January 3d the scales were tested and found accurate. On July 5th the mine was idle and no inspection was made. On the last visit, August 9th, the air was insufficient owing to the fire not having been kindled in the furnace. This I requested attended to. Seventeen miners and six day hands are employed. Robert Holcomb is mine boss.

NO. 3.

This mine is located near Buchtel, on the S. F. B. of the C., H. V. & T. Ry., is owned by the same Company as the Briar Hill and Coe Hill and under the same management. It is a drift opening made into the No. 6 seam of coal. Five visits

were made here during the year. On November 30th I found the air insufficient owing to the fire in the furnace having been neglected. To this I ordered immediate attention given. August 30th I found the third and fourth west entries which were not in operation on my former visit had been started and men were working at them. I found them isolated from the air current as no doors or brattices had been erected to conduct the current to the working faces and the air was unfit for persons to work in. I ordered the men employed in these entries to cease work until the needed improvements could be made. On February 6th the mine was idle and no inspection was made. On the next visit, May 19th, the mine was in good order but work had not as yet been resumed in the condemned entries. Forty-eight miners and five day hands are employed. William Stillwell is mine boss.

NEW HILL

Is a part of the Briar Hill mine but is separated from it by a hollow. It is owned by the same company but has been leased to the Mahoney Coal Co. When visited September 19th, it was in good condition but the coal was near exhausted and it has since been abandoned.

NEW NO. 29.

This mine is situated near Nelsonville, on the C., H. V. & T. Ry., and is operated by the Raybould Bros. of Nelsonville. Samuel Raybould is superintendent and William Raybould mine boss. It is a drift opening driven into the No. 6 seam of coal which is here six feet in thickness and of a good quality. It is worked on the double entry system and has furnace ventilation. Was visited five times during the year. On November 16th I found the ventilation deficient owing to the ineffectual methods being used. I requested break-throughs made in several rooms and brattices erected. February 20th, I found the mine in much the same condition as before owing to the furnace being in the abandoned works, it was isolated from the part now in operation, and I requested the first east entry driven to the surface and a furnace built at the east terminus of the entry. On May 15th my requests had not been complied with owing to the late strike. On August 31st, I found that the east entry had been driven to the surface but the furnace had not as yet been provided and the Jessel and Hall entries were badly in need of air. I ordered work in these suspended until the law could be complied with. On September 2d, a stack had been erected at the terminus of the east entry and a fire basket had been provided. A fire was kept regularly in this and the mine was in good condition. Seventy miners and ten day hands are employed.

CASE RUN OR NO. 10

Is located at Orbiston on the S. F. B. of the C., H. V. & T. Ry., and is owned and operated by the same company as No. 29. Barney Donnelly is mine boss. It is a drift opening made into the No. 6 seam of coal. The mining is done by the Jeffrey's electrical mining machines, and the mine is equipped with a rope haulage, is worked on the double entry system and has fan ventilation. Two visits were made during the year. On January 13th, the date of my first visit, the mine was in good condition. On June 29th I requested timbers set at the face of several rooms on the first west and second east entries. Fifty miners and fifteen day hands are employed.

CARBONDALE.

This mine is located at Carbondale on the Mineral City branch of the B. & O. S. W. Ry., and is operated by the Carbondale Coal Co., with Chas. Smith superintendent and Hugh Mallen mine boss. It is a drift opening worked on the double entry system and has fan ventilation and rope haulage. On my first visit, January 9th and 10th, I requested some obstructions removed from the air course. I advised them to reopen the first west to the main entry and build the necessary brattice to conduct the air current north through the main to the third west entry, thence west through the third west and through the mine as usual. This was necessitated by the closing in of the old works between these entries. On my last visit, June 30th, I found my requests complied with and the mines in good condition. One hundred and sixteen miners and twenty-four day hands are employed.

EAST HILL

Is owned, operated and under the same management as the Carbondale. Is located near it and the coal is taken over the same tippie. This mine is worked on the double entry system and has fan ventilation, and when visited June 30th, was found in good order. Twelve miners and two day hands are employed.

BECKLER OR TRACE RUN

Is located near Carbondale, and owned and operated by P. J. Beckler, who is also superintendent, and J. T. Beckler mine boss. On January 20th the air shaft, which had been requested on my former visit, was nearly completed and a furnace had been built, but as the air was escaping through the crevices in the brattices and doors, the current was insufficient at the working places. I ordered these repaired and one additional door erected. On my last visit, June 30th, the improvements had been made and the mine was in good order. Ten miners and three day hands are employed.

HAMLEY RUN

Is located at a station of that name, and is owned and operated by the Chicago & Ohio Coal & Car Co., with T. N. Black, superintendent, and George C. Smith mine boss. It is a shaft opening sixty feet deep driven into the No. 6 seam of coal. Ten visits were made here during the year, and owing to the numerous changes of mine bosses, I have experienced some difficulty in getting the necessary improvements made. On January 4th and 5th I found that part of the mine known as the Cunningham entry in an unsafe condition, owing to the posting of several of the rooms being neglected, and there was a very poor distribution of air at the working faces on that entry. I requested timber set in the necessary places, and some doors and brattices erected to conduct the air current into the rooms. Similar improvements for other parts of the mine, which had been suggested on a former visit, had not been made. A change in the mine boss was the excuse for a noncompliance. My visit on March 11th was for the purpose of investigating the accident which caused the death of W. H. Preston, a miner, who was instantly killed on the 8th inst. by a fall of slate at the face of his room No. 7 on the Cunningham entry. He was undermining the coal when the roof gave way and fell upon him. On this visit I found another change of mine bosses. On March 14th and 15th I found the same condition of affairs existing and requested the repairs made. There had been another change of mine bosses, Mr. Smith now being in charge. I repeated the

requests made on former visits, with the positive injunction that if they were not completed within a reasonable length of time, extreme methods would be resorted to. On June 1st, I found that the improvements had been completed and the mine was in fair condition. I requested some additional timbering done and a few break-throughs made in the rooms on the Cunningham entry. I tested the scales on July 22d and found them accurate. On September 13th the mine was idle and no inspection was made. One hundred and thirty-five miners and thirty-two day hands are employed.

PICKETT

Is located two miles south of Nelsonville on the C., H. V. & T. Ry., and is operated by Bartell and Spencer. John S. Spencer is superintendent and mine boss. It is a drift opening made into the No. 6 seam of coal and has natural ventilation, which has been found sufficient for the number of men employed. Was visited four times during the year. A few break-throughs were ordered made and some bad roof timbered. The mine was otherwise in good condition. Twenty-two miners and five day hands are employed.

WEST FLOODWOOD.

This mine is operated by Geo. Gill and is located at Floodwood. It is a drift opening made into the No. 6 seam of coal. On December 7th I found the mine poorly ventilated. As there was no artificial means of ventilation and no efforts being made to provide any as ordered on my previous visit, I ordered the mine suspended until some means of ventilation could be provided. On December 14th I found the mine undergoing repairs. Was visited again March 2d, May 25th and September 5th. I found my requests complied with and the mine in good order. September 22d and 23d I tested the scales and found them in favor of the company. I ordered them repaired. Forty miners and nine day hands are employed. G. W. Gill is superintendent and G. C. Silcott is mine boss.

NELSONVILLE CLAY

Is located one mile west of Nelsonville on the C., H. V. & T. Ry., and is operated by the Nelsonville Sewer pipe Co., with L. L. Scott superintendent. There are three drift openings made into the No. 7 seam of clay and the product is used in the manufacture of paving brick by the same company. Ten miners and three day hands are employed.

LAUREL HILL.

This mine is located at East Clayton on the C., H. V. & T. Ry., and is owned and operated by the East Clayton Clay Mfg. Co., under the direct supervision of J. M. Lama. The mine was nearly exhausted when visited December 12th and has since been abandoned.

EAST CLAYTON CLAY MINE.

This mine is situated near and is owned and operated same as the Laurel Hill and under the same management. Chas. Woollet is mine boss. It is worked on the single entry system and has furnace ventilation. Four visits were made during the year and each time the mine was found in good condition. Twelve miners and two day hands are employed.

CLIFFE.

This is a new mine located near the East Clayton, and is owned and operated by the same company and under the same management. It is a drift opening driven into the No. 6 seam of coal. When visited May 23d, it was found to be badly in need of air as there was no artificial means of ventilation. I requested them to sink an air shaft and build a furnace. On October 4th I found the ventilation provided and sufficient pure air in circulation throughout the mine. Five miners and two day hands are employed.

WELLS

Is a new mine located two miles southeast of Nelsonville on the Gill land. It is operated by A. H. Wells. It is a drift opening and ventilated by means of an iron basket hung at the bottom of the air shaft. When the mine is in operation, the coal is hauled in wagons, a distance of half a mile, to the C., H. V. & T. Ry., and is dumped into the railway cars. Six visits were made during the year. December 13th I found the mine in poor sanitary condition and requested a second opening made and a stack placed at the surface terminus. I suggested a furnace or an iron basket near the bottom of the stack for a fire. On January 25th the artificial means of ventilation were unprovided and the sanitary condition of the mine was consequently unimproved. I insisted upon a compliance with the law. On March 2d the mine was still in bad condition and no efforts were being made to comply with my requests. I thereupon ordered all operations discontinued at once until the demands were complied with. July 5th, August 7th and September 6th I found the mine idle. I am informed that they have hung a basket as requested and the mine is in good condition. Five miners and three day hands are employed. Isaac Six is in charge.

DOANS .

Is situated near Nelsonville, and has been suspended for a considerable length of time, but has been reopened during the year by Henry Pugh for the purpose of furnishing coal for domestic use in the vicinity. Was visited February 1st when it was found to be in good order for ventilation. Four miners and one day hand are employed. It has since been abandoned.

STOKEY

Is a domestic mine located at Nelsonville and is operated by C. P. Evans. Was visited on February 15th, when I found the entrance to the hill in an unsafe condition, owing to the timbers being badly decayed. I requested them replaced by new ones. Since this visit the mine has been abandoned.

BEILEYS.

This is a new mine located near East Clayton and is operated by Beiley and Bowers. The output is used for domestic purposes in the vicinity. Natural ventilation is sufficient for the small force of four miners and two day men employed. James Beiley is manager.

MAPLE HILL

Is located two miles south of Nelsonville and is operated by the Maple Hill Coal Company under the supervision of Joshua Spencer. Twenty miners and five day

hands are employed. Was visited three times during the year, namely, January 22d, July 5th and August 29th. On the first visit the coal was nearly exhausted. The pillars were being drawn and on the last visit I found the mine abandoned.

BELL RUN

Is located about three miles northeast of Nelsonville on a line of the Monday Creek branch of the C., H. V. & T. R'y and is owned, operated and under the same management as the Maple Hill. It is a new drift opening made into the No. 6 seam of coal and is ventilated by an iron basket hung at the bottom of the air shaft in which there is a good fire kept. Was visited September 8th and found in good condition. Twenty-five miners and two day hands are employed.

KING

Is a drift opening located at King's Station on a line of the B. & O. S. W. Railway and is operated by James Sickles. It has been abandoned during the year.

EVANS.

This is a new mine located at Nelsonville and is operated by C. P. Evans for domestic purposes. It is a drift opening made into the No. 6 seam of coal and employs seven miners and two day hands. Natural ventilation is sufficient for the force of men employed. When visited August 31st, it was in good condition. William Casey has supervision.

WITZEL

Is a new mine which furnishes coal for a small domestic trade and was opened during the year by Lewis Witzel and is located at Buchtel. Natural ventilation is sufficient for the number of persons employed. One miner and one day hand are employed.

ROBINS

This is also a domestic mine located at Nelsonville and is operated by Ed. Holland. Like all such mines it is ventilated by natural pressure which is sufficient for the number of men employed. When visited February 28th it was found in good condition.

The following are mines in adjoining districts which were visited by request of the Chief Inspector of Mines.

NO. 29

Is located at Murray City in Hocking county and is operated by the Greendale Furnace Company, of Columbus. Was visited May 17th for the purpose of testing the scales which were found accurate.

MONDAY

Is situated at a town by the same name in Hocking county on a line of the Monday Creek branch of the C., H. V. & T. Railway. It is operated by Robert Stalter. I visited this mine September 22d for the purpose of testing the scales and found them accurate.

WAINWRIGHT.

This mine is located near Wellston in Jackson county and is operated by the Wainwright Coal Company. In company with Mr. Short, inspector of that district, I visited the mine on May 28th to investigate the cause of complaints from the miners who refused to work owing to the fan being placed at the top of the slope. The passage is used as a place of ingress and egress and they claimed that the air current was too strong in which to travel. We could detect no violation of the law and the department was unable to interfere. Seventy miners are employed under the personal supervision of D. J. Harry.

WASHINGTON COUNTY.

SYCAMORE

Is located at Coal Run on the Muskingum river and is operated by Hickman, Cowell & Company. James Hickman is manager. It is a slope opening. Three visits were made during the year. On February 24th I found the mine in an unsafe condition on account of the insecure slope and main haulway and insufficiency of air. I ordered solid timbering done from the entrance and extending twenty-five feet into the slope. I also had them reset alternate timbers from that point to the bottom of the slope and from there to set timbers under loose roof to the switch on the main haulways. I also ordered an artificial means of ventilation and stopped all operations until the requests were complied with. March 11th and May 10th the mine was still suspended. Five miners and two day hands are employed.

FELIX

Is a slope mine located near Sycamore and is operated by W. S. Keever. When visited March 24th it was idle and no inspection was made. March 10th, I found the main haulway in an unsafe condition and ordered timber set under loose roof from the bottom of the slope to the north end of the switch on the main entry. As the air was insufficient I ordered operations stopped until the mine was made safe and placed in a good sanitary condition. On my last visit May 11th, I found them progressing with the above improvements. The coal is three and one-half feet in thickness. Nine miners and two day hands are employed. W. S. Keever is manager and mine boss.

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GALLIA COUNTY.

CARLS.

This is a drift opening located at Carlton on the C., H. V. & T. Railway. It was formerly operated by C. A. Carl & Sons, but on account of the financial embarrassment of the company it has been suspended the greater portion of the year. The mine has changed hands and is now operated by Mack & Bing. C. Mack is superintendent and H. V. Carl is mine boss. Twenty-six miners and eleven day hands are employed.

LAWRENCE COUNTY.

OLD MILL.

This is a drift mine located at Vesuvius Station on the Iron Railway and is operated by Henry Pirrung & Son. On June 21st I tested the scales and found them accurate. On June 22d I examined the mine and requested a number of break-throughs made in rooms. The mine was otherwise in good condition. Thirty-five miners and nine day hands are employed. Henry Pirrung is superintendent and William Pirrung mine boss.

LAWRENCE MILL

Is a drift mine located near the Old Mill, and is operated and managed by the same company. It is worked on the single entry system and is ventilated by natural pressure. Two visits were made during the year. On June 21st I tested the scales and found them in favor of the company. I ordered them repaired. On June 22d that part of the mine, Flue and Foit entries, were badly in need of air. I requested work in these entries discontinued until doors and brattices could be hung and repaired to conduct pure air to the working faces. Twenty-one miners and five day hands are employed.

KELLEY

Is located at Ironton and is owned and operated by the Kelley Iron and Nail Company. It is worked on the single entry system and is ventilated by a furnace. When visited November 1st it was found in good condition. Twenty-six miners and five day hands are employed. Conrade Klein is superintendent and mine boss.

NEWCASTLE

Is located at a town by that name at the terminus of a branch railway from Hanging Rock. It is owned and operated by Means, Kyle & Company, with E. B. Willard, superintendent, and Hugh Shield, mine boss. It is a drift opening and is worked on the single entry system, the entries all being driven to the surface and natural pressure is used as a means of ventilation. When visited November 2d I found the ventilation deficient in two entries, and requested an iron basket hung at the bottom of a small air shaft on the Malley entry and a fire maintained in it as a means of ventilation for these entries. The mine is otherwise in good condition. Sixty miners and twenty-two day hands are employed.

PINE GROVE ORE

Is located near Pine Grove furnace, and is owned and operated by the same company as the Newcastle. There are three drift openings in the hill in close proximity to each other and known as Nos. 1, 2, and 3. On April 4th August Putzek was fatally injured by a fall of clay while removing some iron ore from its bed in mine No. 1. Upon my investigation April 7th I found it to be a veritable death trap, and ordered operations discontinued until it could be made secure by timbering and lagging the roadways on the sides and overhead. Ten men are employed. A. R. McIntosh is superintendent, and John Thicken, mine boss.

MAY

Is situated near Lawrence Furnace and is operated by May & Carrington. It is a new drift opening and has natural ventilation which is sufficient for the force of men employed. The product is used by the Lawrence furnace. When visited June 23d the mine was in good order. Charles May is superintendent and mine boss.

WILLARD (LIME AND CLAY).

This is a new mine located at Steece station on the C., H. & D. Ry., and is operated by E. B. Willard & Co., with S. S. Littlejohn, superintendent and manager. It is a drift opening and its product is lime and clay. When visited June 23d it was found in good condition, with fourteen miners and two day hands employed.

BELFONT

Is located at Vesuvius station on the Iron Ry., and is owned and operated by the Belfont Iron Works. It is a drift opening. When visited June 21st, was found idle owing to the depression in the iron trade, as the product is used by the Belfont Iron Works, and that industry was suspended for the entire season. When working, forty-five miners and seven day hands are employed. John Farmer is manager.

LAWRENCE FURNACE.

This mine is located at Culberson station and is owned and operated by the Lawrence Furnace Company. John Peters is mine boss. When visited June 23d, they were robbing the main entry pillars preparatory to abandonment.

THE FOLLOWING IS A LIST OF SMALL DOMESTIC MINES VISITED, EMPLOYING LESS THAN TEN MEN.

Name.	Opening.	Operator.	Number miners.	Post-office address.
Miller No. 1...	Drift	Thos. Miller.....	3	Ironton.
Miller No. 2...	"	Thos. Miller.....	3	Ironton.
Hecla	"	J. A. Blackwell.....	4	Ironton.
Griswell	"	J. W. Griswell.....	2	Ironton.
Gilland.....	"	Jos. Gilland.....	7	Ironton.
Davis.....	"	Zachariah Davis..	2	Ironton.
Wilson	"	J. H. Johnson.....	4	Ironton.
Phillips ..	"	J. W. Phillips.....	2	Ironton.
White.....	"	John White.....	1	Ironton.
Atkins	"	Ed. Atkins	8	Forestdale. Abandoned.
Steed	"	C. L. Steed.....	3	Forestdale. Abandoned.
Casey.....	"	Philip Casey.....	8	Coal Grove.
E. B. Willard..	"	E. B. Willard.....	2	Hanging Rock. Abandoned.
Dent	"	J. L. Dent.....	2	Hanging Rock. Abandoned.

MEIGS COUNTY:

MINERSVILLE

Is a drift mine, located at a small town of that name on the banks of the Ohio river, and is operated by the Minersville Coal Company, with D. S. Lewis, superintendent, and J. W. Lewis, mine boss. Five visits were made during the year. On November 22d I requested considerable timbering done in the first and second west entries, and some obstruction removed from the air course. I measured the mine cars, November 24th and 25th, and found them discriminating against the miners, and I ordered them reduced to the regulation capacity of twenty and one-fourth bushels, or the miner paid for the difference. June 13th I found my requests complied with and better feeling existing among the employes. On September 20th the mine was idle and no inspection was made. Twenty miners and nine day hands were employed.

PEACOCK

Is located at Pomeroy and is operated by the Peacock Coal Company, with Martin Ebersbach, superintendent, and William Ebersbach, mine boss. It is a drift opening, operated on the double entry system and has furnace ventilation. When visited November 25th, I requested considerable timbering done on the Minehart and Rinehart entries, and some loose roof taken down in several parts of the mine, several break-throughs made in rooms, and a check door placed on the Rinehart and first and second east entries to turn the air into the rooms. On April 28th I found my former requests complied with and the mine was in fair condition. On September 26th I found it necessary to order additional break-throughs in rooms and the obstruction in the air course removed. One hundred miners and thirty-seven day hands are employed.

EXCELSIOR

Is located at Pomeroy and is operated by the Excelsior Coal and Salt Company. Daniel Deihl is manager. It is worked on the double entry system and has furnace

ventilation. Two visits were made during the year, namely, April 25th and September 28th, when the mine, with a few exceptions, was found in good order. Thirteen miners and two day hands are employed.

ROLLING MILL

Is located at Pomeroy, and is operated by Martin Ebersbach, who is also superintendent and John Owens mine boss. This mine is a drift opening, is worked on the double entry system and has furnace ventilation. Three visits were made during the year, viz.: April 25th and 26th and September 29th. On the first named date I requested some loose roof taken down in several places on the entries and several break-throughs made in rooms. On the second visit I measured the mine cars by request of the mine committee and found them holding from one fourth to one bushel in excess of representation and I ordered them reduced to $20\frac{1}{4}$ bushels, standard. On my last visit the air at the working places was insufficient owing to the leaks in the brattices. These I ordered repaired. Twenty miners and three day hands are employed.

CHARTER OAK

Is owned and operated by the Charter Oak Coal Company, and is located at Pomeroy. B. J. Malone is superintendent and William Vance mine boss. It is worked on the double entry system, and has furnace ventilation. Was visited twice during the year, viz.: March 23d and September 27th. On the first named date I requested some loose roof taken in several places along the entries and break-throughs made in several rooms. On the last visit I found it necessary to require additional roof taken down on the entries and break-throughs made. The mine was otherwise in good order. Forty-two miners and thirteen day hands were employed.

COAL RIDGE.

This mine is located at Pomeroy, and is operated by the Coal Ridge Coal and Salt Company. J. W. Thomas is superintendent and D. W. Daniels mine boss. It is a drift opening, worked on the double entry system and has furnace ventilation. Was inspected April 27, when it was found poorly equipped for drainage, but as the coal was about exhausted, I did not require the company to go to the expense necessary to thoroughly drain the mine. On September 27th I requested break-throughs made in several rooms, and the drain on the main haulway opened to carry out the water on the roadway. Fifteen miners and five day hands are employed.

WILLIAMS

Is owned and operated by John E. Williams, and is located on the banks of the Ohio river, near Minersville. It is a drift opening, is worked on the double entry system and is ventilated by means of steam boilers placed at the bottom of the air shaft, the fire under which serves as a substitute for the furnace with quite satisfactory results. On March 7th, 8th and 9th I measured the mine cars and found them discriminating against the miners. I ordered them reduced to the regulation size. On March 21st I found it necessary to order several break-throughs made in rooms, and a check door placed on the first west entry to turn the air into the rooms. There was a squeeze crossing the first and second west entries and a force of men were at work day and night setting or replacing timbers to check it. September 20th I

found the squeeze settled and the mine in fair condition. Mr. David E. Evans, an ex-mine inspector and a man of excellent judgment is in charge. Sixty-five miners and thirty-six day hands are employed.

SYRACUSE SHAFT

Is located in a town by that name on the banks of the Ohio river and is operated by the Syracuse Coal and Salt Co. It is a shaft opening, is worked on the double entry system and has furnace ventilation. On September 20th it was found idle and I am informed that it has remained so the greater part of the year. Eighty-six miners and twenty-eight day hands are employed. L. H. Bridgeman is superintendent and Thos. Mainwaring mine boss.

SYRACUSE SLOPE.

This mine is located near, and owned and operated and under the same management as the Shaft mine. These mines are connected by the east and west entries, and the slope is used for the second opening and an inlet for air in the shaft. When visited September 20th, it was idle and no inspection was made. Twenty miners and seven day hands are employed. The output is used for domestic purposes in the locality where located.

KING'S

Is situated about four miles north of Middleport on a line of the K. & M. Railway and is operated by Thos. King. It is a drift opening, and has natural ventilation which is sufficient for the number of persons employed, as the entries are driven through the hill and the working places are near the surface. Twelve miners and two day hands are employed. T. J. King is superintendent and mine boss.

NYE FARM

Is located one mile below Middleport and is operated by John B. Lindsay. This mine is a drift opening. But little work has been done here this year. When visited June 16th it was idle, but as there was smoke issuing from the furnace stack, I investigated the cause and found the coal in proximity to the furnace on fire. I notified Mr. Lindsay and he put the men to work to extinguish the fire. Five miners and two day hands are employed when the mine is in operation. William Dinsmore is manager.

PRIODE.

This is a new drift mine located near Nye farm and is operated by John Priode and the coal is used for domestic purposes. When visited June 16th I found the mine in a very poor sanitary condition and requested a second opening made for an air course and some artificial means of ventilation provided. On September 19th I found that no efforts were being made to comply with my requests and I ordered all mining and hauling of coal except from the air course discontinued until the law was complied with. Six miners and two day hands are employed, under the supervision of Jesse Vembel.

SILVER RUN.

This mine is located about three miles below Middleport on the banks of the Ohio river, and is operated by Wm. C. Russell, who is also superintendent and mine boss. It is worked on the double entry system and employs ten miners and two day hands. The coal is let down to the tippie over an incline plane by the aid of rope and drum. When visited March 24th, it was found in poor sanitary condition. There was no air in circulation in the mine and I requested a second opening made for an outlet, and a check door placed on the second west entry in order to turn the air into the rooms. On September 19th a portion of my former requests had been complied with and the remainder were progressing as rapidly as possible.

DABNEY.

This mine is located at Pomeroy, and is operated by Frank Hess. Natural ventilation is sufficient for the number of men employed as they all work near the surface. When visited June 14th, I requested break-throughs made in several rooms and the doors on the Russell entry repaired. The coal is nearly exhausted in this mine. Eight miners and three day hands are employed. Frank Hess is superintendent and mine boss.

EUREKA

Is located at Middleport and is operated by Thos. Scott, who is also general manager. The coal is about exhausted, only two miners being employed working out the main entry pillars near the surface.

ENTERPRISE

Is a new mine located on Kerr's Run, near Pomeroy, and is operated by Malone Bros. for domestic purposes. Walter Malone is general manager. It is a drift opening, and when visited June 13th, the air current was insufficient and I requested a second opening made as an air course. September 27th they were working on the air course which would soon be completed. Two miners and one day hand are employed.

DIAMOND

Is located near Middleport and is operated by John Michael who is also general manager. Natural ventilation is sufficient for the number of persons employed, being only two miners and two day hands.

BEAR

Is a new mine located at Middleport near the K. & M. depot and is operated by Kauff Bros., with William Kauff, superintendent and mine boss. It is worked on the single entry system and has furnace ventilation. When visited June 15th it was badly in need of air owing to the air course being filled with water between the furnace and the working places. This I ordered removed. On September 19th the mine was idle and no inspection was made. Nine miners and three day hands are employed.

NAIL MILL

Is located at Middleport and is operated by King, Gilbert and Warner. It is worked on the double entry system and has furnace ventilation. When visited June 15th and September 19th it was found in good condition. Fifty-one miners and twelve day hands are employed. Mr. Thomas Headly, a gentleman of long experience and good judgment, is general manager.

REPORT OF ROBERT H. MILLER,

Inspector of the Third District, from November 15, 1892, to November 15, 1893.

Hon. R. M. HASELTINE, Chief Inspector of Mines:

DEAR SIR: I herewith respectfully submit my second annual report of the third district for the year ending November 15, 1893. The district consists of the counties of Muskingum, Morgan, Noble and Perry.

One hundred and sixty-five mines have been visited during the year, of which forty-seven have been visited once, thirty-six twice, sixty-three three times, twelve four times, four five times, one six times, one nine times, and one fifteen times. I also visited one mine in Athens county, which make in all four hundred and six visits. Of the permanent improvements there have been three new fans erected, ten furnaces built, thirty-four air shafts sunk and thirteen second openings made. Of the mines standing suspended there were twenty-one, while twelve were abandoned.

There have been fourteen sets of scales tested and with a few exceptions they were found correct.

Four fatalities have occurred during the year, as follows: At the Princess mine in Muskingum county on February 4, 1893, Geo. Waxler was killed by a fall of slate. At the Upson No. 1 mine, Perry county, on February 23, 1893, William Peterson was killed by a fall of roof while drawing pillars. At the Congo mine, Perry county, John Madvas, a Hungarian miner, dropped dead from failure of the heart on February 25, 1893, and on September 20, 1893, at the Union mine, Perry county, Arthur Dozer was killed by a shot blowing through the pillar from an adjoining room. I believe a little more care on the part of all concerned would obviate a number of the accidents which occur from falling roof, and I am positive that were sights put on rooms as in entries and the rooms carried forward by those sights, it would prevent most if not all the accidents that occur from shooting through the pillar, as I have never known an accident of this kind to occur where rooms were conducted by sights, as by that means the pillars are kept uniform in thickness.

In regard to the oil used, I have heard very few complaints during the year and believe there is quite an improvement in that article. While in Noble county last Fall, I found them still using black oil in a few small mines near Stafford at the Monroe county line. I explained to them the baneful effects of that brand and requested the use of it discontinued.

While my labor for the last year has been arduous, it has been very pleasant. I have tried to perform my duty honorably and fearlessly, treating all concerned justly and respectfully, and I acknowledge with pleasure that with one or two exceptions I have been very respectfully received by both operators and miners with

whom my duty brought me in contact; and thanking them for their courteous treatment and you especially for the many favors and kindly advice,

I am, very respectfully,

ROBERT H. MILLER,
Inspector Third District.

SHAWNEE, O., *November 15, 1893.*

PERRY COUNTY.

NO. 8

Is the property of the Sunday Creek Coal Company, and is located at Corning, on the T. & O. C. Ry. It is a shaft opening sixty-five feet deep made into the No 6 seam, is worked on the double entry system and has fan ventilation. Two hundred and seventy miners and forty day hands are employed. The coal is hauled from the interior of the mine to the shaft bottom by an endless rope. It was visited four times during the year, viz.: December 13th, January 13th, May 26th and September 8th, and with the exception of several break-throughs which were ordered made and a few props which I requested set, the mine was always found in good condition. Fred Miller is superintendent and Robert England mine boss.

NO. 19

Is owned and operated by the same company as the No. 8 and under the same management, with Geo. Hodgson, mine boss. It is located at Buckingham on the Buckingham branch of the C., S. & H. Ry. It is a shaft opening made into the No. 6 seam and is worked on the double entry system. Two hundred and eighty-five miners and thirty-six day hands are employed. Fan ventilation is used. It was visited four times during the year. On the first inspection, December 8th I ordered a number of break-throughs made on the east side. The ventilation was good on this side of the mine, but I found it deficient on the 7th and 8th west entries, and the north west entries. The air traveling on the last named entries was very foul, being the last of the current. I requested a hole sunk on this side of the mine for an inlet. On February 9th I found all the break-throughs which were ordered, made, and a slope sunk on the second north entry for an inlet. The condition of the mine was much improved. On my third visit, May 29th, I found the stoppings on the west side and along the main entry leaking very badly. I requested them all recayed and made air tight. On my fourth visit, September 7th, I found all orders complied with and the mine in good condition.

NO. 21

Is also the property of the Sunday Creek Coal Company, and is located at Carrington, on the Buckingham branch of the C., S. & H. Ry. It is a machine mine and is ventilated by a fan. One hundred and six miners, and twenty-six day hands are employed. It was visited fifteen times during the year. I made the first visit November 2d in company with Mr. Haseltine, the Chief Inspector, and Mr. Short, Inspector of the 1st District, when, by order of the Chief, the right side of the mine was stopped until further orders owing to defective ventilation. The improve-

ments ordered on the left side of the mine on my previous visit had been neglected, and they were given two days to complete them. On November 25th they were placing a door on the first left entry and making a number of break-throughs between the rooms on this entry. I found two new doors erected on the second left entry. I requested a number of break-throughs made on this entry, and stopped rooms Nos. 4 and 5 on the 14th cut-off until the others were driven up. I found the ventilation much better in this cut-off. I then turned my attention to the right side of the mine, and found that most all the stoppings between the two entries were leaking. These I ordered reclayed, and allowed break-throughs made between rooms on this side of the mine, but no other work done until further orders. I also found a new door erected on the first right entry to turn the air into the 20th cut-off. I examined the overcast and found it leaking, and ordered it reclayed. On December 1st, in company with the Chief, I found a number of places within the limit of the law, which were permitted to resume work. I also found all doors repaired and the overcast completed. On December 2d I found the break-throughs to the right 20th cut-off driven in the bottom benches, and 6,080 feet of air passing through the hole. I allowed all the rooms to the right of this break-through to resume work. On my fifth visit, December 7th, I found the mine idle for the want of cars, but they were cutting break-throughs as fast as possible. On December 10th I found that the mine had only worked one-fourth day since my last visit, and for this reason the improvements were moving very slowly. On the 7th visit, December 14th, learning that the Chief and Mr. Morton of the Sunday Creek Coal Company, had been in the mine all the previous day, I returned home. On my 8th visit, December 17th, I found very little improvement. I ordered a break-through made between the north face entries. On December 24th I ordered room 17 in 20th cut-off stopped until a break-through was made. On the 10th visit, December 31st, I urged Mr. Wile to persevere with the break-throughs between 6th and 20th cut-offs. The ventilation was better at the face of the first right entry. On January 25th I found but little change. They were cutting through the solid block of coal to the right of the 20th cut-off with the intention of sinking an air-shaft. On my 12th visit, March 25th, I found the left side in fair condition and an air-shaft put down in 20th cut-off. The condition of the mine was much improved. On April 26th I made a visit and tested the scales, and found them two pounds in favor of the miners. On the 14th visit, June 1st, I had a new door erected on the 20th cut-off. The ventilation was deficient in several places throughout the mine, but they were using all possible means to improve its condition. On September 29th I found the mine in good condition. Fred. Miller is superintendent and John H. Wile mine boss.

SHAWNEE VALLEY

Is the property of the Shawnee Valley Coal & Iron Company. It is located at Shawnee and has facilities for shipping by the B. & O. and C., S. & H. Rys. It is a drift opening made into the No. 6 seam, is worked on the double entry system and is ventilated by a furnace. It has a fine system of endless rope haulage that brings out twenty-three cars each trip. One hundred and fifty miners and twenty-six day hands are employed. It was visited April 27th, July 15th and October 11th. On the first visit I requested a number of doors repaired; this they agreed to attend to at once. On the second visit I found that the mine had been suspended since early in May. On the last visit it had recently resumed work and was in good order. Thos. Phillips is superintendent and Thos. T. Jones mine boss.

CONGO

Is the property of the Congo Coal Mining Company, and is situated between Drake's Station and Corning, on the C., S. & H. Ry. It is a shaft opening made into the No. 6 seam of coal which is here between thirteen and fourteen feet in thickness, and the mine is worked on the double entry system and has fan ventilation. The cages are self-dumping, and the mine is equipped by electricity, by which the shaft bottom is illuminated and the coal is cut entirely by machines. This is a model mine. It was visited three times during the year. On my first visit, February 26th, I was called to investigate the cause of the death of John Madvas, a Hungarian miner, and found that he dropped dead from heart failure in room No. 3 on the west main entry, on Saturday, February 25, 1893. On the second visit, May 23d, I found a fine slope sunk on the west side for a traveling way, and also for an inlet for that side of the mine. The ventilation was deficient owing to the fan being too small and out of repair. There were several rooms driven 135 feet without break-throughs, and numerous stoppings were leaking. In addition many of the break-throughs were partly filled with bone coal. I requested break-throughs made every sixty feet and kept clear of obstructions, brattices reclayed and a new fan provided. On August 30th I found the previous orders complied with, and a new ten-foot Hayden fan erected. I found a few places where the ventilation was deficient owing to working through clay veins where break-throughs could not be made. With that exception the mine was in good order. One hundred and twenty-three miners and thirty-six day hands are employed. J. H. Fergusson is superintendent and J. W. Taylor mine boss.

XX

Is operated by H. D. Turney & Co., and is located at Shawnee. It has facilities for shipping by the C., S. & H. and B. & O. Rys. It is a drift opening made into the No. 6 seam and is worked on the double entry system. One side of the mine is ventilated by a fan and the other by a furnace. At one time in the year it employed 425 miners and thirty-five day hands. It has a fine system of tail rope haulage that brings out from twenty to twenty-five cars each trip. It was visited six times during the year. On my first visit November 17th, I found a number of brattices put up since the last visit, but the ventilation was still deficient on the west side owing to so many surface breaks which caused conflicting currents. I ordered all except one closed. I also ordered a number of break-throughs made between rooms on Moody and Lahley entries. On my second visit, June 12th, I ordered the stoppings repaired on both sides of the mine owing to the ventilation being still deficient on the west side. On my third visit, September 1st, I found everything on the west side bratticed which was calculated to improve the ventilation, but still there was no improvement. The fan being located so far from this side of the mine, the trip of cars coming on the entry would completely check the air current and counteract the influence of the fan. I requested an air shaft sunk on this side of the mine and either a furnace or fan provided. I visited the mine again on September 20th, to see what progress they were making with the air shaft and found them using all available means to complete it. On the fifth visit, October 12th, I found the ventilation deficient on the east side of the mine, owing to the breaks in the old works supplying the fan and I requested those breaks all bratticed up. I found an air shaft sunk on the west side and a furnace erected and this side entirely separate from the east side and in good order. On October 26th, I found the east side bratticed according to orders and the condition very much improved. J. H. Fergusson is superintendent and A. B. Fergusson mine boss.

FURNACE NO. 2

Is the property of Gosline & Barbour, of Toledo, and is located at Shawnee, and has facilities for shipping coal by the B. & O. and C., S. & H. Rys. It is a slope opening made into the No. 6 seam, and is worked on the double entry system, and is at present ventilated by a fire basket. The coal is hauled from the interior of the mine to the hoppers by an endless rope. It was visited five times during the year. On the first visit, November 16th, I advised Mr. Jones to use the new air shaft on the left side of the works for an outlet, as it would shorten the distance for the air travel, besides, the present return airway was badly obstructed. On my second visit, March 16th, there was a stack erected on the new air shaft and a large fire basket placed at the bottom and the condition of the mine was much improved. On March 24th, I tested the scales and found that it took three hundred pounds to move the beam owing to the upright rod being bent. We cut away the timber and tested again and found them accurate. On my fourth visit, July 21st, the amount of air was not sufficient for the number of men employed. The other mines being idle has crowded this one with men. As soon as the others resume work it will reduce this mine to its regular working force and the air will then be sufficient. The mine is in much better condition than it has been for some time. On my fifth visit, September 16th, I tested the scales, finding them on first trial thirty pounds light; after making some changes about the beam they weighed correctly. One hundred and thirty-four miners and fifteen day hands are employed. John H. Jones is general manager.

UPSON NO. 1

Is the property of the Upson Coal Company, and is located near Shawnee and ships by the B. & O. and C., S. & H. Rys. It is a drift opening made into No. 6 seam, is worked on the double entry system, and is ventilated by a furnace. It is a machine mine equipped with electricity. The coal is hauled from the interior of the mine to the hoppers by an electric motor. It was visited five times during the year. On my first visit, December 12th, I ordered break-throughs made in eleven rooms on the third right and eleven on the fourth right entries. I requested all doors on the main entry repaired, and all stopping to the left of the main entry reelayed. On December 30th, I found all improvements ordered on the previous visit either made or about to be made. I visited it again on February 25th, to investigate the cause of the death of William Peterson, a boy fourteen years of age, and learned that he came to his death on February 23d, by a fall of slate in room No. 12 on the second right entry. On my fourth inspection, July 20th, the mine was found in good order. On my fifth visit, October 14th, I tested the scales and found them correct. One hundred and seven miners and twenty-one day hands are employed. Reese E. Williams is superintendent and mine boss.

UPSON NO. 2

Is located near and owned and operated and under the same management as the No. 1 mine. It is a drift opening made into the No. 6 seam and is ventilated by a furnace. Twelve miners and one day hand are employed. On my first visit December 12th, the solid body of coal was nearly exhausted. They were working out points of the hill wherever they were not prevented by bad top. On July 20th they were working pillars only and the mine was in fair condition.

IRON POINT NO. 2

Is operated by Opperman & McGrew, and is located near Shawnee on the B. & O Ry. It is a drift opening made into the No. 6 seam of coal which is here five feet in thickness. It is ventilated by a fan. The coal is conveyed from a switch on the entry to the hoppers, a distance of 3,000 feet, by a small locomotive. It was visited five times during the year. On the first visit November 26th, I ordered a number of break-throughs made between the rooms on the first west entry turned off the first north. I also ordered break-throughs made between rooms on the first west entry on the south side. The ventilation is deficient throughout this mine at present, but Mr. Richards, who has recently assumed the management, says he will improve it at once. On my second visit, May 27th, the mine was idle and not inspected, owing to the stack on the air shaft having blown down and no fire being in the furnace. On my third visit, June 16th, the ventilation was not much improved. They had just sunk a new air shaft with the intention of putting a fan on the top in the near future. On the fourth visit, July 3d, I tested the scales and found them correct. On August 14th, I visited it again to test a new ten-foot Hayden fan, which had just been erected on the top of the air shaft, and found 33,360 feet of air at the inlet. It is a pressure fan. The mouth of the mine is the outlet. The locomotive runs a short distance into the entry and the return air carries out the smoke. The condition of the mine is very much improved. One hundred and thirty miners and eighteen day hands are employed. William Richards is superintendent and mine boss.

HEMLOCK

Is situated at Hemlock, on the C., S. & H. Ry., and is operated by the Columbus & Shawnee Coal Company. It is a slope opening made into the No. 6 coal which is here six feet in thickness. The mine is worked on the double entry system and is ventilated by a fan. It was visited four times during the year, viz.: January 23d, May 31st, and September 22d and 23d. On the first visit I tested the scales and found them correct. On the second visit nearly all the stoppings in the mine were leaking badly. I requested them repaired and several break-throughs made. Since the last visit there has been a tail rope system run into the mine a distance of 1,600 feet, and a shaft sunk which is used at present as an escape for the pumps. On the third visit I found all the improvements made which were ordered and the mine was in good order. On the fourth visit I tested the scales with the following results: On the first trial with the empty box, ten pounds heavy; while the second trial, with coal in the weigh box was twenty pounds light. The scales seem to be effected by friction. We then changed one sheave wheel and two rollers over which the chains of the weigh box worked and on the next two trials they weighed accurately. One hundred and thirty-six miners and fourteen day hands are employed. C. G. Kern is superintendent and Pearl Barrell mine boss.

— NO. 3

Is the property of the Columbus & Hocking Coal and Iron Company, and is located on the Rock Run Branch of the B. & O. Ry. It is a drift opening made into the No. 6 seam, and is worked on the double entry system and is ventilated by fan. This is a machine mine equipped with electricity. On my first visit, December 16th, I found a new air shaft put down and a Ray & McConnell fan erected and the mine in good order. On my second visit, June 14th, I found them sinking another air shaft closer to the face of the works, and the mine in excellent condition. On my third visit, October 25th, I found the new air shaft completed and they intend in the near future to move the fan to that point. There was also a new opening made

further up the hollow by the power house, with the intention of abandoning a portion of the main entry and bringing the coal on the outside from that point to the hoppers. This is one of the best mines in Perry county, and is always in good order. After inspecting the mine I brought my weights over and by request of the mine committee I tested the scales and found them accurate. There is also a fine system of tail rope haulage in this mine. Two hundred and eighty miners and thirty-seven day hands are employed. Vint Furguson is superintendent and Hugh Dalrymple mine boss.

NO. 5

Is owned and operated by the same company as the No. 3, and is located at New Straitsville, on the C., H. V. & T. Ry. It is a drift opening made into the No. 6 seam, has furnace ventilation and employs one hundred and twenty-eight miners and twelve day hands. Vint Furguson is superintendent and J. W. Taylor mine boss. There are two openings in operation, one in the north and the other in the east hill. Pillars only are being worked in the former. Since my last visit, there is an entry driven through the east hill and a new opening made on the Rock Run side, and on special occasions coal is run over the No. 3 tipple. Both openings were in good order. This mine was visited three times, viz.: December 20th, January 24th and July 7th. On my second visit I tested the scales on the Rock Run side and found them accurate. On my last visit the mine was suspended.

NO. 11

Is owned and operated by the same company as the Nos. 3 and 5, and is located near New Straitsville, on the C., H. V. & T. Ry. It is a drift opening made into the No. 6 seam, is worked on the double entry system and is ventilated by a furnace. It was visited on January 24th, June 13th and October 23d. On the first named date I found the ventilation deficient on the north main entry. I requested a break-through closed on the 5th right entry and a door placed between the 5th and 6th left entries. On the next visit I found all the improvements which had been ordered made and the mine in good order. One-hundred and sixty-seven miners and nineteen day hands are employed. Vint Furguson is superintendent and John F. Roberts mine boss.

NO. 33

Is also the property of the C. & H. C. & I. Co., and is located at New Straitsville, on the C., H. V. & T. Ry. It is a drift opening made into the No. 6 seam. Only pillar work is being done and the mine is nearly exhausted. It was visited March 15th, to obtain the names of witnesses to testify before the coroner on the death of David A. Sherrard, who met with a fatal accident, February 20, 1892. On inspection I found the mine in good order. The coal is used principally for coaling engines. Three miners are employed. Vint Furguson is superintendent and J. C. Faine mine boss.

BLACK DIAMOND.

This mine is owned by the Ohio Coal Company of Columbus, and is located on the Rock Run Branch of the B. & O. Ry. It is a drift opening made into the No. 6 seam, is worked on the double entry system and is ventilated by a furnace. The coal is lowered over an incline to the hoppers by means of a drum and wire rope.

On my first visit, December 15th, there were ninety miners and sixteen day hands employed. Drawing pillars was the principal work, and the mine was in very good order. I visited it again on July 7th and October 27th, and found it idle on both dates. David Williams is superintendent and mine boss.

HAZELTON

Is operated by Spencer & Hazelton, and is situated on the Rock Run Branch of the B. & O. Ry. It is a drift opening made into No. 6 seam of coal, which is here six feet in thickness. The mine is worked on the double entry system and has furnace ventilation. The coal is lowered over an incline from the mine by means of a drum and wire rope to the brick works where it is consumed. On my first visit, December 15th, there were nine miners and one day hand employed. Perry Hazelton is superintendent and John C. Michael mine boss. I found the mine in fair condition. On my second visit, July 7th, it was suspended owing to the brick works being idle.

BLACK BIRD

Is operated by the Young Coal Company, and is located near Anderson's station, on the Shawnee Branch of the B. & O. Ry. It is a drift opening made into the No. 8 seam, and is worked on the single entry system. I visited the mine on March 17th for the purpose of testing the scales, and found the mine idle and no one on the ground. I visited it again on March 23d and tested the scales and found a variation of from two to four pounds on different trials. On July 8th I found them depending on natural ventilation and the current very unstable, which caused the mine to be very smoky. I requested a fire placed at either end. Twenty-five miners are employed. Fred Young has entire supervision.

DICKSON, SOUTH SIDE,

Is the property of J. C. Hamilton, and is situated at Dickson, on the Shawnee Branch of the B. & O. Ry. It is a drift opening made into the No. 6 seam of coal, which is here three feet in thickness. The coal is lowered over an incline by means of a drum and wire rope to the tippie. It was visited three times during the year. On my first visit, February 28th, there were six miners employed. An air shaft had been sunk and a stack erected thirty-six feet in height, but there was no fire of any kind. On my second visit, June 19th, they had placed a fire basket in the air shaft and were only driving entry. Nine miners and two day hands are employed. On October 10th, there were three entries driven to the surface for ventilation and drainage, and the mine was in good condition. Fifty-one miners and five day hands are employed. J. M. Foreman is superintendent and H. R. Larimer mine boss.

DICKSON NO. 3

Is located near and is owned and operated by the same company as the South Side, under the same management and the coal goes over the same tippie. On my first visit, February 28th, the mine was only used for the purpose of conveying the coal through from No. 5 opening. On June 19th, they had begun to draw the pillars. On the last visit, October 10th, I found them drawing the entry pillars, and the mine will soon be finished. Four miners are employed.

DICKSON NO. 5

Is located near the No. 3 and is owned, operated and officered by the same parties. The coal is taken over the same tippie. It was visited three times during the year. On my first visit, February 28th, I found the first and second east entries driven out to the surface and the mine in good order. Fifty miners and five day hands were employed. On the second visit, June 19th, they were drawing the pillars for the purpose of abandoning it. Three miners were employed. On October 10th I found it abandoned.

REND'S NO. 3

Is situated at Rendville on the T. & O. C. Ry., and is operated by W. P. Rend & Co., of Chicago, Ill. It is a shaft opening made into the No. 6 seam, worked on the double entry system and is ventilated by a fan. It was visited nine times during the year. On January 9th I was called to this mine and found the fire that was threatened four months previous between the 4th and 5th west entries had broken out in full force on the latter entry and the mine full of smoke out to the bottom of the shaft. We bratticed the shaft and slope with bales of hay and put a board brattice in the 4th west entry, reversed the air current and forced the smoke back to the end of the 5th west entry, where it stood and formed an eddy, the current running under and the smoke coming out on top. We whipped the smoke back on the fifth entry to the third room where we found the entry on fire. Part of our men beat the smoke back while the others put up a board stopping, that being the only material at hand. We came back thirty feet and put up a second and then put up one at the end of the 6th entry and another on the main south, after which we had the fire in check. As we had then checked the air from traveling south, we opened the 4th entry and allowed it to travel west. A crew of men then went into the 4th entry and the carbonic oxide generated by the fire had been diluted and reached the explosive point so that when the men approached it exploded and blew out all our stoppings and did considerable other damage. The smoke was again out in the south entry. We whipped it back to the end of the 5th west entry but it would not go beyond that point. The south entry was very wide here and fortunately there was quite a quantity of slate lying in it. We then built a slate wall across the dark south entry which was a means of closing the 5th and 6th west entries. A number of the men beat the smoke back while others were putting up the wall. That night we put up a brick wall twenty inches in thickness in front of the board stopping on the main south entry, and on the morning of the 11th we began a second brick wall twenty inches in thickness in front of the slate stopping on the dark south entry. At my request Mr. Haseltine, the Chief Inspector, joined us at noon on the 11th accompanied by Mr. Rend. Between this and morning we finished the second brick wall, the flames shooting out at the top of the slate wall. While the men were at work on the morning of the 12th, the Chief, Mr. Rend, Mr. Williams, Mr. McLaughlin, myself and others started along the 4th west entry as far as room No. 40, or what is known as a cross cut, thence south along that cross cut 1,200 feet to the 8th entry. We then went east on the 8th entry with the intention of getting to the main south, with a view of surrounding the fire, but found both the 7th and 8th entries closed. We then concluded to close all the room ends on the 4th entry as far as room No. 40 and all break-throughs south on cross cut to the 8th entry, also the ends of 5th, 6th, 7th and 8th entries. The company started a large force of men to do this work. We then decided to build two more brick walls on the south entry outside of the two already up in order to make that part secure. On my return to the mine on the morning of the 14th, I found that they had built and plastered all the rough walls on the 4th entry and south on cross cut to the 8th entry and built a part of a second

course of brick walls on the south entry. We turned the air current in its proper course in the evening for the first time since the fire broke out. I advised them to put sentinels along the line of the stoppings to look out for the leaks. I also requested them to begin at the mouth of the 4th entry and face all the bone coal stoppings with brick walls as fast as possible west to room 20, for fear of the bone coal stoppings burning out and the fire breaking out on the Dilley road. On my visit of the 18th, I found the double doors out of repair between the inlet and the outlet. I requested them repaired. The second pair of brick walls across the south entry had been completed since my last visit and two more along the east side of the south entry. On January 28th, I found a new door put up between the shaft and inlet and the second door repaired. There was also two more brick walls built on the east side of the main south entry and four put up at the mouth of the Dilly road and they were still advancing along the entry with that work. Up to this time James McLaughlin had entire supervision. On May 24th I found one place 240 feet in advance of the air. I requested a break-through made or the place stopped. I also found all the stoppings leaking between the 3d, 4th, 5th and 6th west entries. I ordered them all repaired and reclayed. On August 31, I found the ventilation deficient throughout the mine owing to the leaking stoppings. I ordered several break-throughs made and the stoppings repaired and Fred Logwood's place stopped until ventilated. One hundred and eighty miners and twenty-seven day hands are employed. Thos Corcoran is superintendent and William Perry mine boss.

STAR

Is situated near Crooksville on the C., S. & H. Ry., and is operated by the Star Coal Company. It is a drift opening made into the No. 6 seam and is worked on the double entry system. It was visited four times during the year. On my first visit, December 21st, I found the mine in good order. I visited it again February 21st, owing to an alarming report in the newspapers that an explosion of powder had occurred that shook the earth and killed and injured several men. I found that there had been a shot fired in a room which was driven 41 feet from the entry. The miner who worked in this room and the one who occupied the room outside of it were standing on the entry outside of this room and on the course of the air current; when the shot went off it either created a dust explosion or ignited a part of a keg of powder or both. The flame came out on the entry and scorched those two men about the face and hands. On my next visit, June 5th, the mine was suspended, On September 19th it had resumed work. I found two stoppings and two doors leaking which I ordered repaired. I also ordered a few breakthroughs made between rooms. When this is done the mine will be in good order. Thirty miners and two day hands are employed. John Baillie has entire supervision.

■ CROOKSVILLE ■

Is located at Crooksville and operated by Thomas Ross. It is a drift opening made into the No. 6 seam of coal which is hauled to the potshop by teams. When visited January 27th it was suspended. On September 19th I found it abandoned.

LYONSDALE

Is operated by M. Meenan and is located at the tunnel, two miles west of McLuney on the C. & M. V. Ry. It is a drift opening made into the No. 6 seam of coal which is here three and one-half feet in thickness. It was visited three times during the year. On my first visit, March 2d, the furnace was enlarged but was not sufficient yet. I found two doors and several stoppings leaking which I ordered repaired. I

also found that they had changed from the single to the double entry system. On June 21st, the ventilation was deficient and considerable black damp was being generated. They were making an effort to drive through to an old mine and expected to soon break through. On October 5th, I found a new air shaft sunk, a good stack on the top of it and a furnace at the bottom and the mine in good order. Twenty-five miners and two day hands are employed. M. Meenan is general manager.

BLOCK

Is the property of Tague & Bennett, and is situated near McLuney on the C. & M. V. R'y. It is a drift opening made into the No. 6 seam. Was visited March 1st, June 21st and October 5th. On the first named date there was no fire in the furnace and the ventilation was deficient. I ordered a fire kept in the furnace and the loose slate on the entry taken down. On my second visit, I found a new air shaft sunk with an area of nine square feet at the bottom. I requested the shaft made larger. On the last visit I found the shaft enlarged, a furnace built at the bottom, and the mine in good order. Thirty miners and two day hands are employed. Chas. Tague is superintendent and Lon Tague mine boss.

BEECH GROVE NO. 6, WEST SIDE.

This mine is the property of I. H. Jones, and is situated at McLuney on the C. & M. V. R'y. It is a drift opening made into the No. 6 seam. It was visited three times during the year. On the first visit, March 1st, I found some loose slate on the entry, and ordered it taken down and three cross pieces put up. I also found two doors and one stopping leaking, which I ordered repaired. On my second visit June 20th, I found previous orders complied with, but at this time I found the ventilation deficient at the face of the west entries. I also found four slate stoppings and one door leaking which I ordered repaired. I ordered a door placed on the west entry and break-throughs made at the face, and the entry stopped until this was done. Thirteen miners and two day hands are employed. October 4th, I found the mine suspended.

BEECH GROVE NO. 6, EAST SIDE,

Is located near and owned and operated, and under the same management as the West side. It was visited March 1st, and found to be abandoned.

BEECH GROVE NO. 5, WEST SIDE.

This mine is situated near the No. 6, and is owned and operated by the same company and under the same management. It is a drift opening made into the No. 5 seam of coal, which is here four feet in thickness. The coal is hauled up a short incline, and run over the same tippie as that from the No. 6 seam. It was inspected three times during the year. On the first visit March 1st, the ventilation was deficient owing to the side of the air shaft sliding in. I requested the shaft cleaned out and the stack made higher. On my second visit June 20th, the shaft was cleaned out, but the mine had been idle over a month owing to the water breaking in. They expected to be able for work in another week. On October 4th, the stack on the air shaft had been raised, but previous to this date the return air way had completely closed. The evil was remedied by sinking a new air shaft for an inlet and allowing the air to return on the main entry to the furnace. Forty-two miners and four day hands are employed. I. H. Jones is superintendent and Arch Brown mine boss.

LOWER

Is situated near Crooksville on the C. & M. V. R'y., and is operated by Tague Bros. & Co. It is a drift opening made into the No. 6 seam and has furnace ventilation. It was visited January 27th, June 22d and October 6th. On my first visit the ventilation was insufficient. I found the door between the main entry and the furnace which was out of repair on my previous visit, still leaking, and there was but little fire in the furnace. I ordered the doors repaired and a new door placed at the end of the 1st and 2d west entries and more fire kept in the furnace. On my next two visits the improvements which were ordered were made, and the mine was in good condition. Twenty-eight miners and three day hands are employed. A. P. Tague has entire supervision.

UNION, NORTH SIDE,

Is situated between Crooksville and Roseville on the C. & M. V. R'y., and is operated by the Standard Coal company of Columbus. It is a drift opening made into the No. 6 seam, is worked on the single entry system and has furnace ventilation. It was visited four times during the year. On my first visit, February 20th, I found the mine idle and did not inspect it. On my second visit, June 5th, the ventilation was deficient, the furnace got 1,400 cubic feet of air from the old opening which I ordered bratticed. I also found the curtains on the room ends pulled down and in bad order, which I ordered repaired, and the air conducted to the face of the entry. On my third visit September 21st, I was called to investigate the death of Arthur Dozer, and found that he came to his death on Wednesday, September 20th, in room No. 8, on the 4th right entry, by a shot blowing through the pillar from an adjoining room. I found the ventilation deficient and ordered an air shaft sunk. On November 3d, I found a new air shaft completed and a furnace built. I requested a stack placed on the shaft, and when that is done the mine will be in excellent condition. Twenty-six miners and two day hands are employed. David Mathews is superintendent and Geo. Parker mine boss.

UNION, SOUTH SIDE,

Is also the property of the Standard Coal company, and is located on the opposite side of the hollow from the other mine, and the coal is run over the same tippie. It is a drift opening made into the No. 6 seam. On February 20th, it was idle, and I was informed that it had been idle for two years and had just resumed work one month previous to this date. Six miners are employed. On my second visit, June 5th, the mine was found in fair condition, while on November 3d, I found it abandoned.

STANDARD

Is operated by the Standard Coal Company, and is situated in Green Hollow near Redfield, on the C., S. & H. R'y. It is a drift opening made into the No. 6 seam of coal which is here three and one-half feet in thickness. It has natural ventilation and is worked on the single entry system. I made visits on the following dates: November 29th, May 17th and October 2d. On the first two named dates the mine was found in good order, while on the last visit the ventilation was deficient. They had a good air shaft but no fire. I ordered a furnace built or a fire basket placed in the shaft and a fire kept regularly. Eight miners are employed. David Mathews is superintendent and A. J. Halsey mine boss.

NEW CRESCENT

Is the property of the New Crescent Mining Co., and is located near Roseville on the C. & M. V. R'y. It is a drift opening made into the No. 6 seam, is worked on the single entry system with a parallel air way and has furnace ventilation. On my first visit June 6th, the mine was found in very good order. Found idle but in good order October 30th. Eighty-two miners and seven day hands are employed. Chas. C. Guy is superintendent and J. B. Morris mine boss.

GREEN HOLLOW, NO. 1,

Is operated by the Cratley Coal Co., and is located in Green Hollow near Redfield, on the C., S. & H. R'y. It is a drift opening made into the No. 5 seam, is worked on the single entry system and is ventilated by a large fire basket. It was visited three times, viz.: November 29th, May 17th and October 2d. On the first named date, it was found in fair condition. On my second visit I requested them to make a tight pillar further in the entry, and move the check door to that place to conduct the air into the inside rooms. On my third visit I found several rooms very smoky owing to the irregularity of the break-throughs. The miners are not paid for making them and just do it where it suits them. I found them driving a place across the hollow for air which will reduce the traveling distance. There is an air shaft and furnace ready, and I insisted on them pushing that part of the work. Thirty-two miners and two day hands are employed. William Wallace is superintendent and Samuel Steele mine boss.

CHICAGO.

This mine is located near and is owned and operated by the same parties as the Green Hollow mine. It is a drift opening made into the No. 5 seam. It was visited November 30th, May 17th and October 3d, and on each inspection it was found in good order. They are only working pillars and points of crop coal. Seven miners are employed.

CLOVER HILL

Is operated by W. D. Hamilton and is located in Green Hollow near Redfield on the C., S. & H. R'y. It is a drift opening made into the No. 6 seam of coal which is here three feet in thickness with one and one-half feet of bone coal on top which is taken down on the roadways in rooms and entries. On my first visit, November 29th, I found the Furguson entry ninety-seven feet in advance of the air, and ordered it stopped till the air was brought up. On my second visit, May 17th, the ventilation was deficient in Mr. Leasure's place, but he was driving back to meet an old room for an air way and would soon be through. On October 2d the mine was in good order. Nine miners are employed. E. L. Abbott is superintendent and William McMillin mine boss.

DAVIS

Is situated near Redfield on the C., S. & H. R'y, and is operated by the Davis Mining Company. It is a drift opening made into the No. 5 seam of coal which is here four feet in thickness. It was visited three times during the year. On my first visit, November 28th, I found the ventilation deficient on the eighth east entry and in four rooms located on the left of it. I requested the ventilation improved in

that part of the mine. On my second visit, May 16th, I found several stoppings leaking very badly and Andrew Harris' place too far in advance of the air. I requested all the stoppings repaired and the air conducted into Harris' place. On October 3d the ventilation was deficient throughout the mine, owing to their means of ventilation not being sufficient. They are working with a view of putting down an air shaft at the face of the works. Mr. Davis says he will try and improve the present system until he reaches that point. Twenty-two miners and three day hands are employed. B. J. Davis is superintendent and Wm. Davis mine boss.

C. & E.

Is owned and operated by the Columbus & Eastern Coal Company, and is located near Redfield on the C., S. & H R'y. It is a slope opening made into the No. 5 seam and is ventilated by a small furnace and the exhaust steam from the pump. Three inspections were made during the year. On November 28th, the ventilation was insufficient and difficult to improve. There is a heavy swale to the left of the main entry and the bottom of the depression is I believe twenty feet below the level of the entry. The coal is five feet in thickness in this swale and is hard to work with any system owing to its lying in circular form. What air there is, is fairly well distributed. On May 16th, I found five stoppings leaking on the main entry and three on the first left entry and I ordered them all repaired. On October 3d, I requested a door placed on the main entry to turn the air into the right entries, also a break-through between those entries cleaned out. Eleven miners and one day hand are employed. Chas. A. Dean has entire supervision.

CHESTNUT RIDGE

Is located near Redfield and is operated by A. P. Simons who is also superintendent. It is a drift opening made into the No. 5 seam and is worked on the single entry system. Three inspections were made during the year. On my first visit, November 30th, I found the track of the fourth left entry covered with water for a considerable distance. The hand pump is neglected until the water rises on the entry sufficient to float a boat, the entry being the only lodgment for the water. The ventilation was deficient and the mine very smoky, but they said there was an air shaft sunk on the left side which they were driving for and expected soon to break through; this would improve the ventilation. I requested them to make a sump or lodgment for the water in order to keep it off the entry. Thirty-five miners and four day hands are employed. On my second visit, May 16th, the condition of the mine was getting from bad to worse, the entry was still covered with water so that the track could not be seen and the driver was plunging through it. They had broken through on the long promised air shaft which was six feet square with a hole at the bottom of an area of three square feet. They had neglected to timber the entry on which the shaft was sunk and part of it had fallen six or seven feet high and it was almost impossible to crawl over it while the remainder of the way was filled with stagnant water. I requested the bottom made as large as the remainder of the shaft and the slate and water cleaned out of the air way so that when necessary there could be a fire put in the shaft. I gave them three weeks to complete the improvements. I was informed that Mr. Simons made the statement that his men were not depending on this small hole for air. I am at a loss to know how to harmonize this statement with my report of November 30th, five and one-half months previous, when they promised this air shaft as a remedy for the unlawful condition of the air at that time. It is true there were old air shafts back towards the mouth of the mine, but the old works were closed between them and

where the men were at work; but if even the old works had been open on that date there was not a door in the mine to direct the air. On my third visit, June 23d, the water was partly out but nothing had been done to the air shaft or the air way. Twelve miners and two day hands were employed. Mr. Simons gave as a reason for not complying with the requests, that I had given him six weeks to make the improvement, and I returned in three weeks, and he knowing that he had yet three weeks to complete the work, and therefore did not push it. I am willing to submit to the truthfulness of this statement to my report of May 16th sent to the department. This is the only place in the district where there is a disposition shown to completely ignore the orders of the inspector. Another of Mr. Simons' reasons for non-compliance with the orders was that his men do not complain. I must confess that I have misunderstood the duties of the inspector if there are no improvements to be ordered until the men complain.

NO. 12

Is located at Hamburg on the Buckingham branch of the C., S. & H. R'y, and is operated by the Hamburg Coal Company. Thos. Flemming has entire supervision. It a drift opening made into the No. 7 seam and is ventilated by a fire basket. On my first visit, December 9th, the mine was found in fair condition. On June 2d, I found the ventilation insufficient on the third west entry. This is a single entry where by driving twenty-five feet further will reach a place that is being driven from the second entry which will improve the ventilation. This mine has changed hands during the year and is now operated by Hall & Ginitty. On September 2d, I found the mine idle and it was not inspected. On October 13th, it was in fair condition. Forty-five miners and five day hands are employed. John Ginitty is superintendent and John Hatfield mine boss.

EAGLE

Is located near McCuneville on the Shawnee branch of the B. & O. R'y, and is operated by Crawford and Gaver Bros. It is a drift opening made into the No. 6 seam of coal which is here three and one-half feet in thickness, is worked on the single entry system and has natural ventilation. On the first inspection, May 20th, the main entry was 135 feet in advance of the air, and I requested it stopped until the air was brought within the lawful distance. On September 9th, previous orders were complied with and the mine was in good order. Eleven miners and one day hand are employed. Harry Gaver is superintendent and William Crawford mine boss.

NUGENT NO. 6

Is located near New Lexington on the C. & M. V. R'y. It is a drift opening made into the No. 6 seam. It was visited August 4th and found suspended.

NUGENT NO. 3

Is located in the same hollow as the No. 6. It is a drift opening made into the No 5 seam and the coal is run over the same tipple as that of the No. 6 seam. Was visited August 4th and found suspended.

ZANESVILLE COAL CO.

Is situated near Crooksville on the C. & M. V. R'y, and is the property of the Zanesville Coal Co. It is a new drift opening made into the No. 6 seam and is worked on the double entry system. On my first visit January 27th, there was an air shaft down but no fire. I found it necessary to order three check doors and three break-throughs made, all of which they were preparing to do. On the next visit, June 22d, there was a new furnace built and the mine was in good order. On the last visit, October 6th, the mine was found in excellent condition. 100 miners and six day hands were employed. O. F. McKinney is superintendent and N. W. Spencer is mine boss.

CO-OPERATIVE

Is situated near New Straitsville on the C., H. V. & T. R'y. It is a drift opening made into the No. 6 seam, is worked on the single entry system and has natural ventilation. The hills are narrow and most of the butt entries are driven out to the surface. J. M. Roan, who is superintendent and mine boss, conducts the mine in a very safe and economical manner. Three inspections were made during the year, viz., December 19th, June 15th and October 24th, and on each visit the mine was found in good order. Seventy miners and four day hands are employed.

NO. 51

Is operated by Stalter & Essex and is located near New Straitsville on the C., H. V. & T. R'y. It is a drift opening made into the No. 6 seam, has but one entry driven through the hill with rooms turned on both sides and has natural ventilation. On my first visit, December 19th, I ordered break-throughs made in all the rooms on the left side. On July 14th, I found the mine idle. On October 24th, I tested the scales and found them correct and also found the mine in fair condition with eleven miners and one day hand employed. Stalter has gone out of the company and it is now owned by Calvin Essex who is also superintendent and H. H. Essex mine boss.

NO. 52

Is located about one-third of a mile from No. 51 mine and is also owned and operated by Calvin Essex who is superintendent and H. H. Essex is mine boss. It is a drift opening made into the No. 6 seam. Was visited three times during the year, viz., December 19th, July 14th and October 24th. On my first visit I found that this mine, like No. 51, would go through the hill with but one entry. The entry was then driven two hundred and nineteen feet and with only one opening. I requested a hole put down in the first room on the left side for ventilation to enable them to drive through the hill. On my second visit it was found idle. On the third inspection there was an air shaft sunk on the inner end of the entry and the mine was ventilated by a fire basket and in good order. Eleven miners and one day hand are employed.

HART

Is operated by the Hart Coal Co. and located at Crooksville on the C. & M. V. R. R. It is a drift opening made into the No. 6 seam. The coal is lowered over an incline by a drum and wire rope to the tippie. On my first visit, January 27th, I found all stoppings between the entries leaking. I ordered them all repaired and one brat-

tice built. Eighteen miners and two day hands were employed. Alex. Hart has entire supervision. On my next visit, June 5th, I found it suspended. On September 19th, I found the Crooksville Coal and Sand Co. making an effort to operate it. They had lately taken hold of it, put in a new siphon, got the water out and placed the mine in fair condition. Chas. Williams superintendent and Hiram Pearce mine boss.

TOM GREEN

Is owned and operated by Tom Green and is located four miles from New Lexington. It is a drift opening made into the No. 5 seam and employs two miners. When visited August 2d, I found them making a new opening for ventilation and drainage.

ACKER

Is owned and operated by O. J. Acker and is located four miles from New Lexington. It is a drift opening made into the No. 5 seam and employs two miners. It was visited August 2d and found in good order.

RANDOLPH

Is the property of Perry Randolph who is also manager. It is located four miles from New Lexington and is a drift opening made into the No. 6 seam. When visited August 2d it was found in good order with two miners employed.

JOS. GREEN

Is situated four miles from New Lexington and is owned and operated by Joshua Green. It is a drift opening made into the No. 6 seam. I made a visit August 3d and found previous orders complied with and the mine in good order. Two miners are employed.

FINK

Is the property of J. E. Fink and is operated and managed by Edgar Fink. It is a drift opening made into the No. 5 seam which is here five feet in thickness. It is located four miles from New Lexington. When visited August 3d the mine was found in good order with two miners employed.

ELDER & MCGONAGLE

Is a drift opening made into the No. 6 seam and located four miles from New Lexington. When visited August 3d, it was found suspended owing to a dispute between Elder & Mr. Flowers who bought the McGonagle place.

XX FURNACE

Is operated by the Baillie Coal Co. and is located at Shawnee on the B. & O. R'y. It is a drift opening made into the No. 6 seam and has natural ventilation. Their mining is limited to taking out points around the hill as the solid coal is princi-

pally worked out. The entries and rooms are mostly driven out to the surface. It was visited November 19th, June 17th and October 7th, and on each visit was found in good order. Twenty-four miners and one day hand are employed. Geo. Wallace has entire supervision.

TAYLOR

Is situated at Bowman Hill near McCuneville and is the property of the Taylor Coal & Mining Co. It is a new drift opening made into the No. 6 seam. When visited April 24th the company were grading a switch from the B. & O. R'y to the mine, the point of intersection being McCuneville. There was an air shaft sunk and a part of the trestle work erected for the shutes. Operations at the mine and on the grade have been suspended.

YOST

Is the property of A. J. Yost and controlled by him. It is located four miles from New Lexington. Is a drift opening made into the No. 6 seam. Was visited August 2d when it was found in fair condition, with three miners employed.

FLOWERS

Is located four miles from New Lexington and is owned and operated by L. Flowers. Two miners are employed. It is a drift opening made into the No. 6 seam and was visited August 3d. There was an air shaft sunk but it had not been connected with the face of the work. This mine was suspended for some time and has just resumed work.

JOHN GREEN

Is the property of John Green who is also superintendent. It is situated four miles from New Lexington. It is a drift opening made into the No. 6 seam which is, in this locality, three feet in thickness. Two miners are employed. When visited August 3d I found some timbers required on the entry which I ordered attended to. I also requested two stoppings built.

BUTLER

Is operated and managed by John Butler and is located near New Lexington. It is a drift opening made into the No. 6 seam and employs four miners. It was visited August 4th and found in good order.

BRISTOL COAL CO.

Is situated at Bristol Junction Station on the Shawnee branch of the B. & O. railway and is operated by the Bristol Coal Co. It is a new drift opening made into the No. 6 seam, is worked on the double entry system and is ventilated by a fire basket. When visited October 10th the foundation was laid for an engine and the management intended putting in a tail rope in the near future. Forty-four miners and three day hands are employed. The mine is in good order. S. W. Butt is superintendent and G. C. Butt mine boss.

GREEN HOLLOW NO. 2

Is the property of the Standard Coal Co. and is situated near Redfield on the C., S. & H. railway. It is a drift opening made into the No. 6 seam which is here three and one-half feet in thickness. Has natural ventilation and is worked on the single entry system. It was visited on the following dates: November 29th, May 17th, and October 20th. On the first and second named dates the mine was in good order while on the last I found the ventilation deficient. There was a good air shaft but no fire. I ordered a furnace built or a fire basket placed in the shaft and fire kept regularly. This mine furnishes employment for eight miners. David Mathews is superintendent and A. J. Halsey mine boss.

MUSKINGUM COUNTY.

LEHIGH

Is the property of Davis & Cassingham, of Coshocton, and is located near Roseville on the C. & M. V. railway. It is a drift opening made into the No. 6 seam, is worked on the single entry system and has furnace ventilation. Twenty-five miners and four day hands are employed. It was visited twice during the year. On March 3d I tested the scales and found them correct. I also found the mine in fair condition. On the second visit, June 6th, it was suspended. David Davis is superintendent.

BRUSH CREEK NO. 2

Is owned and operated by the Columbus & Brush Creek Coal Co., and employs fifty miners and ten day hands. It is located near Cannellville on the Cannellville branch of the C., S. & H. railway. R. B. Mauk has entire supervision. It was visited twice during the year. On my first visit, February 3d, I found it in fair condition. July 5th it was found abandoned.

BRUSH CREEK NO. 3

Is located near and is owned, operated and managed by the same company as the No. 2. It is a new drift opening made into the No. 7 seam which is here four feet in thickness. Six miners are employed. Furnace ventilation and double entry system are used. It was visited July 5th when I found the screens were not erected and the main entry was driven in about one hundred yards.

BLUE ROCK

Is operated by the Blue Rock Coal Co. and employs twenty-two miners and two day hands. It is located at Stone's Station on the Z. & O. railway and is a drift opening made into the No. 7 seam which is here four feet in thickness. It has furnace ventilation. It was visited three times during the year. On my first visit, Feb. 23d, the ventilation was deficient owing to obstructions in the break-throughs; these I requested cleaned out. On my second visit, July 11th, I found the previous orders complied with and the mine in fair condition. November 9th I found the ventilation at the face of the workings deficient owing to leaking doors. I ordered filling pieces put in the track under the doors and canvas put on the bottom. When that is done the mine will be in good order. E. J. Souders is general manager.

GARRETT'S

Is situated near Sealover's Station on the Z. & O. railway and is owned and operated by Joseph Garrett and employes sixteen miners. It was visited three times, viz.: February 24th, July 12th and November 9th. On my first visit I found the furnace erected but it was placed too near the air shaft and as a result the stack burned down. I requested the furnace moved further back from the shaft and curtains put on the room ends. On the second visit I found it idle. November 9th I found the current deficient owing to obstructions in the return air way and lack of fire in the furnace. They were driving an entry to the face of the hill for ventilation. The coal is three feet in thickness and pays ninety cents per ton for mining. Joseph Garrett has entire supervision.

BALLOU

Is the property of Orrin Ballou and is located near Sealover's Station on the Z. & O. railway. Six miners are employed. It was visited three times during the year, viz.: February 24th, July 12th and November 9th. On my first visit I found some loose slate on the entry which I ordered taken down. I also requested some posts set, some timbers put up at the mine entrance and the left side of the built entry bratticed. On the next two visits I found the previous orders complied with and the mine in fair condition. Orrin Ballou is general manager.

NEFF'S

Is located near Sealover's Station on the Z. & O. railway and is operated by S. A. Neff. Eighteen miners are employed. It was visited four times during the year. On my first visit, February 10th, I found a new opening in operation running parallel to the old entry with fourteen men employed. I found four men in the old opening which was unsafe and poorly ventilated. I requested it stopped until it was placed in safe condition. I made a visit on March 7th by request of Mr. Neff. He wanted permission to start the old opening. There was a squeeze on this entry for 100 yards which had cut on the right rib. The entry was safe beyond that point. The new entry was within 170 yards of being through on the safe part of the old work. I told Mr. Neff when the new entry was driven through for safety if the old entry was still standing that after being securely timbered he could start it up. My next visit was July 12th. The new entry was working and in good order. November 10th I found the new opening driven through to the old mine, the entry timbered and the mine in good order. S. A. Neff is general manager.

PRINCESS

Is the property of McCoy & Thompson. It is located at Coal Hollow near Sealover's Station on the Z. & O. railway and is a drift opening made into the No. 7 seam of coal, which is here six feet in thickness. Sixty miners and six day hands are employed. I visited this mine five times during the year. On February 10th I investigated the accident which proved fatal to Geo. Waxler, who was killed by a fall of slate in his room. I found the ventilation deficient owing to the breakthroughs being open and the stoppings leaking. I found the face of the north entry 198 feet in advance of the air. I ordered twenty-two men stopped in this entry until the ventilation was improved. On my second visit, March 7th, the improvements ordered were not quite completed but the condition of the mine was very much improved. On my third visit, April 20th, I found all improvements provided. On my fourth visit, July 13th, I found the timbers at the mouth of the mine de-

cayed and sinking down for the length of thirty-six feet. I requested the entry at this place retimbered and when that is done the mine will be in fair condition. November 10th I found the ventilation deficient and the return air-way very much obstructed. I ordered a new air passage made to miss the falls. R. G. Thompson is superintendent and John Winefordner mine boss.

DIAMOND

Is operated by Chas. Cassingham and is situated at Romine's Station on the B., Z. & C. Ry. It is a drift opening made into the No. 7 seam of coal which is here six feet in thickness. Forty miners and four day hands are employed. Chas. Cassingham is superintendent and Abe Laird mine boss. This mine was visited three times during the year. On January 31st I was called to test the scales and found them correct and the mine in good order. On my second visit, June 29th, I found the ventilation deficient. They had just sunk a new air shaft and were erecting a furnace and expected to improve the condition of the mine in a few days. November 15th I found it suspended.

SALT RUN

Is situated at Romine's Station, on the B., Z. & C. Ry, and is operated by the Christy Coal Co. It is a drift opening made into the No. 7 seam of coal. Twenty-four miners and two day hands are employed. It was visited three times during the year. On the first visit, January 31st, I found some stoppings needing repairs, some doors wanting at the end of the east entry and a breakthrough required at the face, all of which I ordered done. On my second visit, June 29th, I found the screens broken down and the mine idle. On November 15th I found the air shaft which was begun about two years ago finished and a kind of a furnace erected in the bottom. The top is bad in this mine but in other respects it is in fair condition. Chas. Eyssen is superintendent and Eli Davis mine boss.

OAK GROVE

Is owned and operated by O. F. McKinney, of Zanesville, and is located at Romine's Station, on the B., Z. & C. Ry. It is a drift opening made into the No. 7 seam of coal which is here six feet in thickness. It was visited three times during the year. On the first visit, January 31st, I tested the scales and found them correct. I also found the mine in good order. I visited it again on June 29th and November 15th and always found it in excellent condition. Fifty miners and three day hands are employed. H. N. Hawk is superintendent and mine boss.

FOUTCH

Is situated on Mill Run just outside of the corporation of Zanesville and is operated by J. W. Foutch. It is a drift opening made into the No. 5 seam of coal which is here four feet in thickness. It was visited four times during the year. On my first visit, March 8th, there was no appreciable current of air in the mine. I stopped Elias Teeter's two rooms until the ventilation was improved. I then went to what was called an inlet and found a box 7x18½ inches. They were driving with the expectation of breaking through an old drift which they thought would improve the ventilation. On my second visit, June 8th, I found no improvement. I ordered an air shaft sunk at once. On the third visit, June 30th, the air shaft was down and

they were cleaning out the air way. On the last visit, November 2d, the air way was cleaned out and the mine was in fair condition. J. W. Foutch is general manager.

LEWIS HARPER

Is a drift opening made into the No. 6 seam which is here two and one-half to three feet in thickness. It is the property of Lewis Harper and is situated on Mill Run. Seven miners are employed. On my first visit, March 8th, I found the bottom of the air shaft caved in and the air way very much obstructed. On my next visit, April 8th, the air-way and the bottom of the air shaft was cleaned out and the mine was in good order. The miners push the coal to the end of the room and it is then hauled to the outside by a small mule. David Lehew is mine boss.

HARPER'S FOUR FOOT

Is situated in the 6th Ward of Zanesville and is the property of Eben Harper. It is a drift opening made into the No. 5 seam of coal which is here four feet in thickness. There are twelve miners employed. I visited this mine March 6th, July 29th and November 13th. On my first inspection I found one room driven one hundred and sixty feet without a break-through, and I ordered the room stopped until the break-through was made; I also ordered some stoppings repaired on the main entry, and a door placed on the main entry outside of Chas. Ashmore's room and the inside break-through made larger. On my second visit I found the previous orders complied with, but very little air in the mine and considerable black damp present. On further inspection I discovered as the cause that the inside break-throughs were almost entirely closed. I requested all the other work discontinued till the break-through was made. I also ordered the mine entrance timbered. On my last visit I found the required improvements made and the mine in good order. Eben Harper is superintendent and Wm. C. Morgan mine boss.

HARPER'S THREE FOOT

Is also the property of Eben Harper and is situated in the 3d Ward, Zanesville, near the Adamsville road. It is a drift opening made into the No. 6 seam which is nearly three feet in thickness and is cut in the clay under the coal by the Harrison mining machine. It was visited on the following named dates: March 10th and 31st, July 27th and November 13th. On my first inspection I found the ventilation insufficient. The air is conducted into the mine through holes in the pillars of the old rooms and the holes were filled with the dirt from the machines to the uniform size of five square feet sectional area, and the face of the entry was 213 feet in advance of the inside hole. I allowed Mr. Harper to use the half of his men at the coal and put the other half to clean out the air-way, and gave him two weeks to complete the work. On my second visit I found the air-way cleaned out to within 170 feet of the face of the entry and still pushing the improvement. I discovered some loose slate on the entry and requested it taken down and timbers set. On my next two visits I found the entry timbered and the other improvements completed and the mine in fair condition. Thirteen miners and three day hands are employed. Eben Harper is superintendent and Chas. H. Best mine boss.

GREINER

Is operated by J. R. Greiner, of Zanesville, and employs eight miners. It is located on Mill Run and is a drift opening made into the No. 6 seam of coal. The miners

push out the coal and use dogs to assist. It was visited March 9th, April 8th, June 8th and November 2d. On the first named date I found the stack enlarged but the ventilation was deficient, owing to a slide in the air shaft. I requested it cleaned out and the top of the shaft timbered and the stack raised twelve feet higher. On my next visit the air shaft was timbered and the bottom cleaned out but the stack had not as yet been raised. On my next visit I found the stack raised and the mine in good order. On the last named visit I also found the mine in very good condition. J. R. Greiner is superintendent and John Monlox is mine boss.

SMITH'S

Is located on Mill Run and is operated by Newton Smith. It is a drift opening made into the No. 6 seam of coal and employs six miners. It was visited on March 9th and found that the little furnace had been made larger but it was full of water and the bottom of the little shaft was partly filled with sediment. In addition, the stoppings were leaking on both sides of the entry. I gave them two weeks to drain the furnace, clean out the shaft, repair the stoppings, close the break-throughs and conduct the air to the face of the works. On my next visit, July 27th, I found it suspended and I was informed that it had not been in operation since my previous visit and that Mr. Smith had given it up.

LEHEW

Is situated on Mill Run, and is operated by Geo. M. Lelew. Eleven miners are employed. It is a drift opening made into the No. 6 seam of coal. It was visited four times during the year. On my first visit, March 8th, I found the air shaft and furnace caved in and requested it cleaned out. On my second visit, March 31st, I found them sinking an air shaft. On the third visit, June 8th, the air shaft was finished but the ventilation was not as good as expected. On examination, I discovered a great deal of water and mud in the bottom of the shaft which I ordered drained and the air passage cleaned out. On November 2d the bottom of the air shaft and the air passage were cleaned out and a fire basket had been placed in the shaft and the mine was in good order. G. M. Lelew has entire supervision.

MILES

Is located on Mill Run, and is operated by Joseph Miles. It is a drift opening made into the No. 6 seam and employs six miners. Joseph Miles has entire supervision. It was visited three times during the year. On my first inspection, March 8th, I found it driven 1 000 feet and but one opening, and ordered a second opening made as soon as possible. I also requested loose slate taken down on the entry and the mine entrance retimbered. Operations were suspended and an air shaft begun. On my second visit, July 29th, the mine entrance was timbered, an air shaft had been sunk and the mine was in good order. On my third visit, November 2d, it was found in good order.

MORGAN'S

Is situated in the 6th ward of Zanesville, and is owned and operated by John Morgan. Eight miners are employed, John Morgan has entire supervision. It is a drift opening made into the No. 6 seam of coal. It was visited three times during the year. On my first visit, March 10th, I found the stack raised on the air shaft as ordered but the mine troubled very much with water; had broken into old works which had numerous surface breaks and the entry was thus flooded. They were try-

ing to drain it. On my second visit, July 27th, the water was drained off. I requested one stopping put in, otherwise the mine was in fair condition. November 13th the previous orders had been complied with and the mine was in fair condition.

MELVIN'S FOUR FOOT

Is situated in the 6th ward of Zanesville, and is owned and operated by Isaac Melvin. It is a drift opening made into the No. 5 seam of coal which is here four feet in thickness. Five miners are employed. It was visited March 10th and 31st, July 27th and November 15th. On my first visit I found them engaged in making an air shaft as the former outlet had recently caved in. On the second visit I found the air shaft down but the bottom of the shaft and the air passage leading to it were badly obstructed. I requested it cleaned out and a stack erected on the top of the shaft. On my third visit the mine was idle and the return air way had closed. I ordered all work stopped till they made a new air way back to the shaft. On my fourth visit such an air way had been made and the mine was in good order. Isaac Melvin is superintendent, and Andrew Melvin mine boss.

MELVIN'S THREE FOOT

Is also the property of Isaac Melvin, and is located on the opposite side of the hollow from the other mine. It is a drift opening made into the No. 6 seam of coal which is here three feet in thickness. When visited July 27th there were two miners employed and the mine was in fair condition. November 13th I found it suspended.

FLETCHER

Is operated by Ewing Fletcher, and is situated on the Dresden Road, two miles from Ellis Station on the C. & M. V. R'y. It is a drift opening in which four miners are employed. Was visited April 21st. The air shaft which had been ordered on a previous visit had been sunk and the mine was in good order. On October 18th I found the air way leading to the back of the shaft very much obstructed and I ordered it cleaned out and the break-throughs made as large as the entry and kept clean. Ewing Fletcher is general manager.

CROSSLAND

Is operated by John Crossland, and is situated on the Dresden road one and one-half miles from Ellis Station on the C. & M. V. R'y. It is a drift opening and employs two miners. Was visited April 21st and found in good order. On October 18th it was found idle owing to the brick works where the coal was consumed having stopped operations. John Crossman is superintendent and mine boss.

WELSH

Is operated by H. Ferrell, of Dresden. It is located on the Dresden road two miles from Ellis Station on the C. & M. V. R'y. It is a drift opening and employs two men. It was visited April 21st and found to have but one opening. I requested a second opening made into the hollow on the right and the mouth of the mine timbered. On October 18th I found them sinking an air shaft and would soon have it completed. H. Ferrell is superintendent.

PANSLER

Is the property of John B. Pansler, and is situated on the Dresden road half way between Zanesville and Dresden. It is a drift opening. It was visited April 21st and October 18th and was found idle on both dates.

MILLER

Is the property of Percival Miller, and is located near Dresden road about four miles from Zanesville. It is a drift opening and employs four miners. It was visited April 21st and October 18th and found in good condition on both dates. H. P. Miller is superintendent.

WILLIAM DICK

Is owned and operated by William Dick, and is situated near Mt. Sterling on the National pike. It is a drift opening made into the No. 3 seam of coal which is here five feet in thickness. Three miners are employed. It was visited April 19th and found idle. On October 20th it was found in good order. William Dick is superintendent.

FRANK DICK

Is operated by Frank Dick, and is situated on the National pike one mile west of Mt. Sterling. It is a drift opening made into the No. 3 seam. When visited April 18th it was found idle, and on October 19th it was found abandoned.

SAM PORTER

Is the property of S. R. Porter. It is situated near Hopewell on the National pike. It is a drift opening made into the No. 3 seam of coal which is here five feet in thickness. Six miners are employed. S. R. Porter is superintendent. It was visited April 18th and October 19th and, with the exception of a few sets of timbers ordered placed on the entry, the mine was found in fair condition on both inspections.

GEORGE PORTER

Is operated by Geo. Porter, and is situated near Hopewell on the National pike. It is a drift opening made into the No. 3 seam of coal which is here three feet in thickness. There is a sulphur stone in this coal which often reaches one foot in thickness. On my first visit April 18th, I found a good deal of bad top and no props on the ground. I ordered props kept of two lengths, one for the roof coal and the other for the main top. On my second visit, October 19th, this opening had been discontinued for operative purposes and was used for ventilation. Mr. Porter had made a new opening into the same workings further up the hollow for the purpose of getting elevation for the screens which had been erected and the coal is weighed in a hopper scale. They have laid a T iron track from the shutes to the interior of the mine and the coal is hauled by a mule. The miners are paid two cents per bushel for mining. This is the best equipped mine in the locality. Six miners are employed. Geo. Porter is superintendent.

MORRISON

Is the property of Ira Morrison, and is situated in Hopewell township. It is a drift opening made into the No. 3 seam and has natural ventilation. It was visited April 18th and found idle. On my second visit, October 20th, I found it working and in fair condition. There are six miners employed. Ira Morrison is superintendent and Nelson Shiplet mine boss.

VARNER.

This mine is owned by Solomon Varner and is situated in Hopewell township. It is a drift opening made into the No. 3 seam. Was visited April 18th and October 20th. On the first visit it was found idle, the entry having caved in and on the second visit I found it abandoned.

JOSEPH PORTER

Is situated near the National pike a short distance from Mt. Sterling, and is the property of Joseph Porter and managed by him. Three miners are employed. It is a drift opening made into the No. 3 seam. Was visited April 19 and October 20th, and found in good order on each inspection.

CAMPBELL

Is situated at Mt. Sterling, and owned and operated by M. W. Campbell who is also manager. It is a drift opening made into the No. 3a or 4 seam of coal which is here three feet in thickness. Four miners are employed. On my first visit April 19th, I found them making a new opening from the face of the hill parallel with the old entry for the purpose of ventilation. On October 20th I found the new opening completed and three break-throughs open between the old and the new openings which I ordered closed to conduct the air to the face of the works. When that is done the mine will be in good order.

JESSE GERMAN

Is situated at Hopewell on the National pike, and is operated by Jesse German and by him managed. It is a new drift opening made into the No. 3 seam of coal. Three miners are employed. It was visited October 19th and found in good order.

STARKEY

Is situated in Hopewell township, and is operated by Geo. L. Starkey and managed by him. It is a new drift opening made into the No. 3 seam of coal and employs three miners. It was visited October 19th and found in fair condition.

FISHER

Is situated on the Marietta road two miles from Zanesville. It was formerly operated by Michael Fisher but is now operated by his son C. W. Fisher. It is a drift opening made into the No. 6 seam and is ventilated by a fire basket. Two miners are employed. Was visited March 29th, July 25th and November 1st and always found in good order.

ROWDOCK

Is the property of Michael Fisher and is located near the Marietta road two miles from Zanesville. It is a drift opening made into the No. 6 seam of coal which is here three feet in thickness. It is ventilated by a small grate. On my first visit, March 29th, I found the previous orders complied with. There was some looses late on the entry which I requested taken down and the entry timbered. On my second visit, July 25th, the loose slate had been taken down and the entry timbered and the mine in good order. Six miners are employed. M. L. Fisher is superintendent and mine boss.

CHESTNUT VALLEY

Is also the property of Michael Fisher and is located about five hundred yards from the Rowdock mine. It is a drift opening made into the No. 6 seam. This is a splendid opening. They have a good air shaft down and are making a ditch into the basin which is seventeen feet deep where it empties. Three miners are employed. M. L. Fisher is superintendent and mine boss.

WERNER.

This mine is owned by William A. Werner and is situated near the Marietta road two miles from Zanesville. It is a drift opening made into the No. 6 seam. Was visited March 29th when there were eighteen miners employed and twenty-two dogs used to assist the miners in getting out the coal. The ventilation was deficient but they had just broken through on the Downerd mine and thought that would improve the ventilation. I requested them to enlarge the air shaft as it is only three feet square at the bottom and fourteen inches at the top. On my second visit June 9th the shaft and stack were enlarged and the mine in good order. On November 1st I found the mine in good condition. The coal is from two and one-half to three feet in thickness and pays three cents per bushel for mining. William A. Werner is superintendent and James Foutz is mine boss.

DOWNERD

Is also the property of William A. Werner and is located over the hill from the other mine with which it is connected. It was visited March 29th when seventeen miners were employed, with twenty dogs. The ventilation was deficient as the return air way was very much obstructed. They were driving an entry 300 feet from the main entry and parallel with it. By driving sixty feet further they would connect the two entries which would then give them a clear passage back to the little air shaft. On my second visit, June 9th, the two entries were connected but the ventilation was not much improved. The air shaft is a two-foot tile pipe and is too small with a fire basket in it to allow sufficient air to pass. They are driving the main entry with the intention of getting to the point of the hill by spring, where a shaft is intended for hoisting purposes. The air will then have a direct course from the present opening to the hoisting shaft. On my third visit, November 1st, the mine was found in fair condition. William A. Werner is superintendent and James Foutz mine boss.

OAK VIEW

Is the property of John Detenbeck, and is situated on the National pike three miles east of Zanesville. It is a drift opening made into the No. 7 seam of coal which is

here, five feet in thickness. Six miners are employed. There are two openings to this mine with the entries running parallel. On my first visit, April 22d, I found a good current of air near the mouth of the mine but none where the men were at work owing to the break-throughs being open between the two entries. I ordered them all closed but the inside one. On my second visit, July 28th, I found them nearly run out with water and defective ventilation. I ordered all work stopped except that employed in perfecting the ventilation. On my third visit, November 11th, they had placed a steam pump at the mouth of the mine to pump the water out after which they intended to improve the ventilation. J. A. Detenbeck is superintendent.

SMITH

Is operated by William Uphold and is situated on the National pike three miles east of Zanesville. It is a drift opening made into the No. 7 seam and employs four miners. It was visited April 22d, July 28th and November 11th. On my first visit they had just broken through on the Swank mine for ventilation and the mine was in good order and also on the next two visits. William Uphold has entire supervision.

SWANK'S

Is the property of N. F. Swank and is situated on the National pike three miles east of Zanesville. It is a drift opening made into the No. 7 seam and employs six miners. The workings of this and the Uphold mine run parallel and the one ventilates the other. It was visited three times during the year, viz.: April 22d, July 28th and November 11th. This is a well conducted little mine and is always in good order. N. F. Swank is superintendent.

ALEXANDER

Is the property of James Alexander and is located four miles east of Zanesville on the National pike. It is a drift opening made into the No. 7 seam. On my first visit, April 22d, it was found idle. The roof on the entry was cut up twelve feet and nothing on top but clay. I ordered all mining stopped till the entry was timbered or the mine abandoned altogether. On July 28th I found it abandoned.

RICHARDS

Is operated by Bridwell & Barton and is located in Brickyard hollow one mile outside of the corporation line of Zanesville. It is a drift opening made into the No. 6 seam and is ventilated by a small furnace. It was visited three times during the year. On my first visit, March 11th, with the exception of one curtain which I ordered put up, the mine was in good order. On my second visit, July 26th, it was in fair condition. On November 14th they had just erected two boilers on the outside and were running the water out of this and the Wallwork mine by an injector or jet pump. It seemed to be a complete arrangement and worked well. Eight miners are employed. The coal pays three and one-half cents per bushel for mining. Chas. A. Barton is superintendent and Chas. Huey mine boss.

WALLWORK

Is located on the opposite side of the hollow and is owned and operated by the same parties as the Richards mine. Eleven miners are employed. On my first visit, March 11th, they had just reached the air shaft which they were driving for on my previous visit. On my second visit, July 26th, I found the current very unstable from natural causes. I requested a clear passage made to the air shaft, the bottom of it made larger and a twenty-foot stack erected on the top and a furnace built at the bottom. On November 14th I found a clear passage made to the air shaft, which had been made larger, and the mine in good order. They have not yet erected the stack or furnace but agree to do so before spring.

MOORE

Is operated by J. Severance & Bro. and is situated one mile outside of the corporation of Zanesville. It is a drift opening made into the No. 6 seam and employs eight miners. On my first visit, April 7th, I found the entry driven through the hill. They had closed the end and erected a box eleven inches by three feet but there was no appreciable current of air. I requested the box made not less than four feet square and a curtain put up. On my second visit, July 26th, I found the entry timbered and a small furnace built, but it was too small for any good results. On my third visit, November 14th, I found the end of the entry opened up and they had again resorted to natural ventilation and the mine was in fair condition. The coal is two and a half feet in thickness and pays three and three-fourths cents per bushel for mining. William Severance, Jr., is superintendent.

KNIGHT'S

Is operated by Jas. A. Knight and is located two miles from Frazeyburg. It is a drift opening made into the No. 5 seam of coal which is here four feet in thickness. Four miners are employed. Was visited August 10th when I ordered one breakthrough made at the face of the entry. When this is done the mine will be in good order. Jas. A. Knight has entire supervision.

COCHRAN

Is operated by H. G. Tomlenson and is located two miles from Frazeyburg. It is a drift opening made into the No. 5 seam. Two miners are employed. It was visited twice during the year. On the previous inspection I ordered a second opening made and on this visit, August 10th, I found nothing done towards it. I ordered the mine stopped until ventilated. I visited it again August 29th, by request of Mr. Cochran and allowed them to resume work on condition that they drive the entry day and night to get it through the hill.

BUCHANAN

Is operated by T. J. Buchanan and is located one mile from Frazeyburg. It is a drift opening made into the No. 5 seam and employs four miners. It was visited August 10th when I found no air in the mine but considerable black damp. There was no outlet but they were making an opening from the opposite side of the hill for ventilation and drainage. T. J. Buchanan is superintendent.

MUSKINGUM

Is operated by L. R. Morgan & Company and is located at Buckeye Station on the Cannellville branch of the C., S. & H. Ry. It is a drift opening made into the No. 6 seam. Twelve miners are employed. It was visited three times during the year. On my first visit February 4th, the current was very unstable owing to so many openings. I ordered all closed but two, one inlet and one outlet. On my second visit, July 6th, I ordered the air way leading to the small air shaft made larger and the shaft made five feet square and a stack put on top of the same size with a fire of some kind at the bottom. On November 4th the air shaft and passage to it was enlarged and a sixteen foot stack erected on the top of the shaft and a stove placed at the bottom. The top on the entry was shot down for the purpose of working a mule and the mine was in good order. L. R. Morgan is superintendent and Jas. Tandy mine boss.

EAGLE

Is located at Buckeye Station on the Cannellville branch of the C., S. & H. Ry. It is a drift opening made into the No. 6 seam of coal which is here near three and one-half feet in thickness. It was visited twice during the year. On my first visit, February 24th, it was operated by Geo. S. Fitz of Zanesville. Six miners were employed. The mine was idle but in good order. July 6th it had been operated lately by William Price but previous to this date he had given it up and the mine was suspended.

FRANKLIN

Is operated by Weaver, Getz & Company of Chicago, and is located one mile from Cannellville on the C., S. & H. Ry. It is a drift opening made into the No. 7 seam of coal which is here four feet in thickness. Fifty miners and eight day hands are employed. On my first visit, February 2d, I found the return air way and break-through entirely too small to pass sufficient air, consequently the ventilation was weak. I requested an air shaft put down near the face of the work and the break-throughs and the return air way made as large as the entry. On July 5th I found the mine suspended. Joseph Bird is superintendent and mine boss.

EAST HILL

Is located near Cannellville on the C., S. & H. Ry., and is operated by Morrison & McCarragher of Stovertown. It is a drift opening made into the No. 6 seam, worked on the single entry system and is ventilated by a small furnace. On my first visit, February 3d, there were fifteen miners and two day hands employed. I found a door and brattice leaking which I ordered repaired. The entry was ninety-two feet in advance of the air and I ordered it stopped until the air was brought up. On my second visit, July 5th, I found the ventilation deficient at the face of the workings owing to the curtains leaking and the room ends being open. I ordered curtains placed on the ends of some open rooms and the others repaired and a door placed near the face of the entry to conduct the air to the left side of the mine. I requested all the obstructions cleaned out of the air way and the stack on the air shaft repaired. W. C. McCarragher is general manager.

GRANGER'S

Is the property of James L. Granger and is located between Muskingum and Buckeye Stations on the Cannellville branch of the C., S. & H. Ry. It is a drift opening made into the No. 6 seam of coal which is here from three to four feet in thickness. On my first visit, February 4th, there were eight miners employed. The coal is hauled from the mine with teams to South Zanesville. I found some stoppings along the entry leaking and ordered them repaired. On my second visit, July 6th, the mine was idle. I was informed that it had done but very little since my last visit owing to the water breaking in. On November 10th I found them still troubled with water. Aside from that the mine was in fair condition. James L. Granger is general manager.

BAUGHMAN

Is operated by J. G. Baughman and is located near Roseville. It is a drift opening made into the No. 6 seam. Three miners are employed. I visited this mine February 20th, to investigate the cause of the accident to William Savage, who was injured by a fall of slate on February 15th. He was taking out a stump of a pillar, when he got it out the bone coal and draw slate gave way and fell on him injuring him about the hips and ankle. He recovered all right.

PHILO

Is the property of John Orr and is located at Taylorsville. It is a drift opening made into the No. 6 seam of coal which is here three feet in thickness. On my first visit, February 24th, there were six miners employed. I found the coal taken out almost entirely between the rooms and no props set. I ordered the rooms timbered and heavy props set in the space where the pillars were taken out. On my second visit, July 11, the props ordered on the previous visit were set and the mine in fair condition. On November 9th I found the mine suspended.

HOCK

Is operated by Daniel Hock and is situated near Taylorsville on the Muskingum river. It is a drift opening made into the No. 6 seam. On my first visit, February 24th, two miners were employed and the mine was in good condition. On the second visit, July 19th, I found the ventilation deficient at the face of the workings, owing to the break-throughs being open. I requested them all closed and the air conducted to the face of the works. On November 9th I found the necessary improvements made and the mine in good order. Daniel Hock is general manager.

GEO. HARPER

Is located in the Sixth ward of Zanesville and is operated by Geo. Harper, who is also superintendent. It is a drift opening made into the No. 6 seam, and employs three miners. It was inspected three times during the year. On my first visit, March 9th, the ventilation was insufficient. They were expecting to break through to an old mine, which they thought would improve the ventilation. On my second visit, July 27th, there was an air shaft sunk and a grate placed at the bottom. I ordered a few break-throughs made and some broken timbers changed near the mine entrance. On November 2d I found a new opening made and they had again resorted to natural ventilation. The men were working but a short distance from the surface and the mine was in good order.

JACKSON

Is the property of John G. Jackson and is situated at Otsego. It is a drift opening made into the No. 6 seam, which runs in this locality from three to eight inches in thickness. Six miners are employed. On my first visit, March 21st, I found the return air way very much obstructed and a small air shaft eighteen inches in diameter with a box on top ten by twelve inches. I requested the air course cleaned out and the air shaft made not less than four feet in diameter and a stack placed on the top twelve feet high and the same area as the shaft. On my second visit, August 8th, the air way was cleaned out, the air shaft enlarged and the lumber on the ground for a stack. On October 16th the stack was erected on the air shaft, a small grate had been placed at the bottom and the mine was in good order. John G. Jackson is superintendent.

W. R. BUKER

Is situated at Otsego and is operated by W. R. Buker. It is a drift opening made into the No. 6 seam, has natural ventilation and employs three miners. It was inspected March 31st, August 8th and October 16th. On my first visit I found the break-through, used for a return air way, almost closed. I requested it cleaned out and the outlet opening made larger. On my second visit the mine was idle. On my last visit I found the previous orders complied with and the mine in fair condition. W. R. Bucker has entire supervision.

TRIMBLE

Is operated by William F. Trimble and is located at Otsego. It is a drift opening made into the No. 6 seam. It was inspected three times during the year. On my first visit March 21st, the return air way was entirely closed and a box twelve inches square had been placed on the top of the small air shaft. I requested an air way made and a twelve-foot stack erected on the air shaft, which should be not less than four feet in diameter. On my second visit, July 9th, the mine was idle and had been since my last visit. On October 16th I found a new air shaft sunk at the face of the works fifty feet deep and the mine in good order. Four miners are employed. Wm. F. Trimble is superintendent.

RINEY

Is the property of G. F. Riney and is located at Otsego. It is a drift opening made into the No. 6 seam and three miners are employed. On my first visit, March 21, I found but one opening. The main entry was driven in 400 feet, with numerous side entries and a good deal of black damp was present in the mine. I ordered an air shaft sunk or a second opening made from the face of the hill, and stopped all other work until that was done. On my second visit, August 8th, there was a new opening made from the face of the hill, but it had not a clear passage through, as they intended to persevere until the improvement was completed. I allowed them to put in miners. On October 17th previous orders were complied with and the mine was in fair condition.

NORMAN

Is situated near Otsego and is operated by H. Norman. It is a drift opening made into the No. 6 seam. Two miners are employed. On my first visit, March 21st, I

found but one opening. I ordered an air shaft put down and all other work suspended until that was done. On August 9th I found the mine suspended, as it has been ever since.

WALKER

Is operated and superintended by A. W. Smith and is located at Otsego. It is a drift opening made into the No. 6 seam and employs four miners. On my first visit, March 22d, I found but one opening and the main entry had been driven 500 feet. I ordered a second opening made. They expect to soon break on an old mine adjacent to them. On my second visit, August 8th, they had not yet reached the old mine, but expected to do so in a few feet. On October 16th they had broken into the old mine, but the ventilation was weak, owing to obstructions in the air way. I located an air shaft and requested it put down at once.

GOODHART

Is located one mile from Otsego and is operated by John F. Smith. It is a drift opening made into the No. 6 seam. Was visited March 22d, August 8th and October 17th. On my first visit I found but one opening. The mine had been idle for some time, but they were cleaning it up with the intention of resuming business. I ordered a second opening made before any more coal was mined. On my second visit they were making an effort to get an opening from the face of the hill. On my last visit there was an air shaft sunk, but they had neglected to timber it and the late rains had caused it to cave in. I requested it opened out as soon as possible and secured. Three miners are employed. John F. Smith is superintendent.

CORNELL

Is the property of William Cornell and is located three miles from Otsego. It is a drift opening made into the No. 6 seam. On my first visit, March 22d, I found but one opening and the mine was idle. I ordered a second opening made before it resumed work. On my second visit, August 9th, I found it suspended.

HAMILTON

Is located one mile from Otsego and is operated by L. C. Hamilton. It is a drift opening made into the No. 6 seam. On my first visit, August 9th, there was but one opening, but I found them working on another. On my second visit, October 17th, the second opening was made and the mine in fair condition. Two miners are employed. L. C. Hamilton is superintendent.

SEALOVER

Is operated by A. Z. Sealover and is located in the Third ward, Zanesville. It is a drift opening made into the No. 6 seam. It was visited three times during the year. On my first visit, March 30th, the ventilation was deficient. The little furnace was two square feet in area, so that when a fire was put in it there was no space for air to pass out. The return air way was of such dimensions that it was not possible to crawl through it. I requested an air shaft sunk or the furnace made larger, and a clear passage made from the interior of the mine back to it. On my second visit, June 7th, there were some improvements made. A very good furnace had been built,

but there was not sufficient space from the bars to the top of the arch. I requested the bars lowered and the return air way cleaned out. On October 31st I found the furnace enlarged, the air way cleaned out and the mine in good order. Five miners are employed. They pay four cents per bushel for mining and wheeling the coal out. The miners use dogs to assist them. A. Z. Sealover is superintendent and Peter Perone is mine boss.

HOFF

Is located in the Third ward of Zanesville and is operated and managed by A. H. Hoff. It is a drift opening made into the No. 6 seam and employs four miners. It is ventilated by a fire basket. Was visited March 30th and October 31st and found in good order on both inspections.

SHULTZ

Is the property of Chas. L. Schultz and is located in the Third ward of Zanesville. It is a drift opening made into the No. 6 seam. On my first visit, March 30th, I found the inlet one foot square and the other break-throughs open along the entry and Young's entry one hundred and ninety feet in advance of the inside break-through. I ordered this stopped, the inlet made larger and the breakthrough closed but since that time the face of the hill had slipped over the inlet and there was no air in the mine. I ordered an opening on the left side cleaned out for a return. They agreed to start it at once. Four miners are employed.

GERMAN

Is located east of Zanesville on the National pike just outside of city limits and is operated by J. T. Bridwell. It is a drift opening made into the No. 6 seam. It was visited April 7th, July 26th and November 11th. On my first visit I found a good air shaft forty or fifty feet deep but the bottom closed with a furnace three feet square in area and several necks in the air way of four feet. I ordered the furnace taken out and the air way made larger. I also found some bad top on the entry which I requested timbered. On my next two inspections I found previous orders complied with and the mine in good order. Five miners are employed. J. T. Bridwell is superintendent.

VARLEY

Is situated one mile from Dresden and is operated by Joseph Varley. It is a drift opening made into the No. 6 seam of coal which is here three feet in thickness. It has natural ventilation. Six miners are employed and three cents per bushel is paid for mining. It was visited August 11th and found in good order. Joseph Varley has entire supervision.

COPELAND

Is the property of J. S. Copeland and is located two miles from Dresden. It is a drift opening made into the No. 6 seam and has natural ventilation. Two miners are employed. It was visited August 11th and found in good order. C. R. Copeland is superintendent.

M'CAIN

Is situated two miles from Dresden and is owned and operated by Henry McCain. It is a drift opening made into the No. 6 seam and has natural ventilation. Two miners are employed. Was visited August 11th. The air was not carried into the face of the work and a good deal of black damp was present. They had an air shaft with an area of two square feet at the top. I requested the pillars broken through, the air conducted to the face of the entry and the air shaft made larger. Henry McCain is general manager.

WHEELER

Is located in the Third ward of Zanesville and is operated and managed by William L. Combs. It is a drift opening made into the No. 6 seam of coal which is here two feet eight inches in thickness. Three and one-half cents per bushel is paid for mining. Five miners are employed. This is an old mine which has been reopened by Mr. Combs and has natural ventilation. It was visited October 31st and found in good order.

TOWNSEND CLAY

Is the property of T. B. Townsend and is situated in the Third ward of Zanesville. It is a shaft opening eighty-six feet deep made into a very fine seam of fire clay which is here nearly sixteen feet in thickness with a sand rock top. In addition to the shaft they have an opening through the hill which gives them good natural ventilation and also makes a good traveling way. On my first visit March 28th, I requested some props set along the entry and the inlet at the bottom of the hill timbered. When that is done the mine will be in good order. Six miners are employed with Jas. McKinney superintendent, and Wm. Hooper mine boss. On my second visit, July 28th, I found the mine suspended owing to the water backing in from a sewer made by the corporation.

OAKLAND CLAY

Is the property of the Oakland Pressed Brick Company and is located east of Zanesville on the National pike just outside of the city limits. It is a shaft opening twenty-two feet deep made into a fine seam of fire clay. They work eleven feet of it. Five miners are employed. J. B. Griswald is superintendent and Walter German mine boss. On my first visit, April 7th, I found the top very bad but the entry was well timbered with square timber 6x8 inches, and when set up stood four feet from center to center and well lagged. The entry was driven in 200 feet. They were driving a place to the right of the entry with the intention of sinking an air shaft. The clay is taken up the shaft by elevators. On my second visit, July 28th, the air shaft was sunk and the mine in as good condition as possible under the circumstances. On November 11th I found it abandoned. There appeared to be no regular top over the clay and the cost of timbering was very heavy.

GERMAN

Is situated in the Third ward of Zanesville and is operated by August German who is also superintendent. It is a drift opening made into the No. 5 seam of coal which is here two feet ten inches in thickness. It was visited March 30th and October 31st and found in good order on both inspections. Two miners are employed. John German is mine boss.

NOBLE COUNTY.

M. B. HUNTER

s located two miles from Cumberland on the B., Z. & C. Railway and is the property of M. B. Hunter. It is a drift opening made into the Meigs creek seam of coal which is here four feet in thickness. I visited this mine on September 14th and was informed that it had been suspended since spring.

RACCOON

Is located near Fredericksdale on the B., Z. & C. Railway. It is a drift opening. Was visited June 27th and found to be abandoned.

MACKSBURGH

Is situated one mile from Macksburgh on the C. & M. Railway and is operated by Alexander Wiper. It is a drift opening and was visited June 28th and found suspended.

SHAFER

Is the property of D. L. Shafer and is situated at Mt. Ephraim. It is a drift opening made into the Meigs creek seam of coal which is here three and one half feet in thickness. It was visited September 11th. The entry has been driven through the hill since the last visit which gives good natural ventilation and drainage. Three miners are employed. D. L. Shafer is general manager.

BRAND

Is operated by S. J. McConnell and is situated at Mt. Ephraim. It is a drift opening made into the Meigs creek seam of coal which is here three and one-half feet in thickness. Nine miners are employed and are paid two and three-fourths cents per bushel for mining the coal which is of good quality. It was visited September 11th and found in good order.

CRAWFORD

Is the property of F. H. Crawford, and is located one mile from Summerfield. The old opening is abandoned since my last visit. This is a new drift opening made into the Meigs creek seam of coal, which is here four and one half feet in thickness. It is situated on the opposite side of the hollow from the old opening. It was visited September 12th. It is in but a short distance and is in fair condition. Two miners are employed. W. H. Bowen is superintendent.

MEEKS

Is situated one mile from Summerfield, and is the property of N. M. Meek. It is a drift opening made into the Meigs creek seam of coal, which is here five feet in thickness. Four miners are employed and paid two cents per bushel for mining.

It was visited September 12th. There had been an air shaft sunk since the last visit but it was too small, and the miners were working 287 feet in advance of the air. I ordered the shaft enlarged and the air conducted to the face of the works. N. M. Meek is superintendent.

YOUNG

Is operated by D. O. Young, and is situated on the Archer Fork of Duck creek one mile from Summerfield. It is a drift opening made into the Meigs creek seam of coal. Three miners are employed. It was visited September 12th when the mine was full of black damp and the lamp would not burn. I did not see Mr. Young, but notified him by letter to stop mining coal until he had an air shaft completed. D. O. Young has entire supervision.

M'CLINTOCK

Is the property of N. W. McClintock, and is situated on Archer Fork branch of Duck creek. It is a drift opening made into the Meigs creek seam of coal. They employ three miners and pay two cents per bushel for mining. On September 12th I found a new air shaft sunk and the mine drained and in good order.

SULLIVAN

Is located two miles from Summerfield, and is operated and managed by E. P. Sullivan. It is a drift opening made into the Meigs creek seam of coal, which is here five feet in thickness. On my last visit I found but one opening and ordered an air shaft put down. On September 12th I found the mine locked and no air shaft sunk. I notified Mr. Sullivan by letter to make a second opening before any other work was done.

BEYMER

Is located two miles from Summerfield, and is operated by F. S. Beymer. It is a new drift opening made into the Meigs creek seam of coal. Two miners are employed. The mine is only driven in a short distance and has but one opening. Visited September 12 and found in fair condition.

POLIN

Is located one mile from Perryopolis, and is operated by Lewis Bryan and under his immediate supervision. Nine miners are employed. It is a drift opening made into the Meigs creek seam of coal, which is here four feet in thickness. When visited September 13th there was but one opening. I did not see Mr. Bryan, but notified him by letter to make a second opening as soon as possible.

MATHENY

Is the property of R. J. Matheny, and is located four miles from Caldwell. Is a drift opening made into the Meigs creek seam of coal. When visited September 13th I found an air shaft four feet in diameter and the bottom of it one foot square. I notified Mr. Matheny by letter to make the shaft larger at the bottom. Four miners are employed.

M'KEE

Is owned and operated by C. J. McKee, who is also superintendent and mine boss. It is situated four miles from Caldwell, and is a drift opening made into the Meigs creek seam of coal, which is here five and one half feet in thickness. The mine has natural ventilation. The entry is driven through the hill with a dump on each side. It was visited September 13th and found in fair condition. Five miners are employed and paid two cents per bushel for mining.

DAVIS

Is located four miles from Caldwell, and is operated by Ezra Davis, who is also superintendent. It is a drift opening made into the Meigs creek seam of coal. Four miners are employed and paid two cents per bushel for mining. It was inspected September 13th when I found a new air shaft which had been put down three weeks previous, and the mine was in good order.

H. C. HUNTER

Is located one mile from Cumberland, and is operated by H. C. Hunter, who is also superintendent. Two miners are employed. It is a drift opening made into the Meigs creek seam of coal, which is here four feet in thickness, and pays two dollars and forty cents per hundred bushels for mining. It was inspected September 14th when a new air shaft had just been put down, and a light T iron track laid throughout the entire mine.

TAYLOR

Is located about two miles from Cumberland, and is operated by Frank A. Coughill, and is under his immediate supervision. Two miners are employed. It is a drift opening made into the Meigs creek seam of coal, and has natural ventilation. It pays for mining two dollars and forty cents per hundred bushels. It was inspected September 14th and found in good order.

DAVID VANCE

Is the property of David Vance, and is situated one and one half miles from Stafford. It is a drift opening made into the Meigs creek seam of coal, which is here four and one half feet in thickness. Natural ventilation is used. The coal is hauled out by a small mule and consumed at a mill. It was inspected September 26th and found in fair condition. All hands were burning black oil, which practice I forbade. Three miners are employed. William Vance is superintendent.

I. R. VANCE

Is located one and one half miles from Stafford, and is operated by I. R. Vance. It is a drift opening made into the Meigs creek seam of coal. Three miners are employed. When inspected September 26th I found but one opening and the mine full of smoke from the use of black oil. I requested them to discontinue the use of black oil and ordered a second opening made at once. William S. Bonner is superintendent.

CURTIS

Is operated and managed by D. R. Curtis, and is situated one and one half miles from Stafford. It is a drift opening made into the Meigs creek seam of coal. Four miners are employed. When inspected September 26th there was but one opening, but they were in the act of making another from the other side of the hill.

MORGAN COUNTY.

ROSE

Is situated at Deavertown Station on the C., S. & H. Railway, and is operated by the Carding Bros. It is a drift opening made into the No. 6 seam, is worked on the double entry system and has natural ventilation. Thirty-five miners and four day hands are employed. Geo. Carding is general manager. It was inspected December 21st and June 24th, and found in good order on both dates.

ATHENS COUNTY.

PHOENIX NO. 1

Is located at Jacksonville on the K. & M. Railway, and is operated by the Phoenix Coal Company. It is a shaft opening one hundred and twelve feet deep made into the No. 6 seam, is worked on the double entry system and is ventilated by a fan. I visited this mine on April 1st and 2d by request of Mr. Haseltine, the Chief Inspector. The coal in the mine had caught fire, the cause not being exactly known. I went to assist Mr. Beattie, inspector of the second district. The fire was located near the face of the first and second west entries and fortunately for all concerned it was surrounded on three sides by solid coal. We walled in the fourth side by building eight brick stoppings. It gave no further trouble. I understand it is not yet opened up. Jas. Richards is superintendent and mine boss.

REPORT OF WILLIAM H. TURNER,

Inspector of the Fourth District, from November 15, 1892, to November 15, 1893.

R. M. HASELTINE, *Chief Inspector of Mines:*

DEAR SIR: My third annual report as inspector for District No. 4, for the year ending November 15, 1893, is hereby submitted.

This district is composed of the counties of Belmont, Guernsey, Coshocton, Holmes and Monroe. The entire commercial trade, however, is confined to the first three named counties, the mines of which open into seams Nos. 6, 7 and 8. The maximum height of the vein at present developed in the two remaining counties does not exceed three feet and it is probable that the trade will never extend beyond domestic limits.

Our district has not escaped the general stagnation in the mining industry and the many difficulties unavoidably arising therefrom. But with a few local exceptions, differences have been equitably adjusted without serious results. Notwithstanding the unusual depression in the coal trade, one excellent new mine with all the modern improvements, has been added to the district during the past year. It is located at Campbell's Station on the B. & O. Railway, a point further to the north-east, than any mine heretofore opened in the No. 7 seam, and the present indications are that this will prove to be one of the richest coal fields in eastern Ohio. The Robins Coal Company, which have been active in the development of the mineral resources of Guernsey county are the projectors and owners of the fine plant.

On the 30th of last May, the buildings of the Farmers' Shaft, located near Byesville, were totally consumed by a fire originating from a bolt of lightning, an occurrence, until then, unknown to the writer in the history of mining. These buildings are now being rapidly rebuilt and equipped with the latest improved machinery.

The general condition of the mines of this district is good and I desire to say in justice to the operators, managers and miners, that with very few exceptions, they have endeavored to meet the requirements of the mining law. The single entry system as worked in some of the larger mines in Coshocton county is defective and cannot be relied upon to distribute the air properly for a large force of men. Owing to the leakage and frequent opening of various doors, the current, however strong at the beginning, is deficient at the entry faces the greater portion of the time.

Statute 306, regulating the quality of oil for illuminating purposes is strictly complied with by coal operators in general, but it is frequently violated by other dealers, who are so numerous that it is practically beyond the power of the inspector to keep watch over them at all times.

Eleven fatalities occurred in my district during the year and a thorough investigation duly reported at the time of each, failed to attach any blame to any person or persons.

I cannot close without thanking the head of the department for the many acts of kindness shown me during the year and the valuable counsel received from time to time.

Very respectfully

WILLIAM H. TURNER,
Inspector Fourth District.

CAMBRIDGE, *November 15, 1893.*

BELMONT COUNTY.

PITTSBURG

Is situated on the Ohio river two miles below Bellaire and is owned and operated by the Pittsburg Coal Company. St. John Rockershausen is superintendent and John Hines mine boss. It was visited on the following dates: December 8th, March 1st and 3d, July 12th and August 12th. On the first visit I tested the scales, finding the tipple scales out of balance and the balance pea loose on the beam. It would move by the jar of the tipple. I requested a set screw provided. I also found the wagon scales obstructed with dirt and consequently inaccurate; they were cleaned at once, after which they weighed correctly. On my next visit I found that the air ways had been cleaned, as referred to in my previous annual report, the air volume

was considerably increased and the mine was in good order. On March 3d, I attended an inquest held over the remains of Chas. Marling, who was struck and fatally injured by a loaded car running back down the slope on February 16th. The safety appliances were on the car, but from some cause the car reared over the drag and run back, when the chain broke. Mr. Marling not being in the man-hole provided for that purpose, was struck with the above result. On July 12th the mine was idle with the exception of a few men who were preparing coal. A new chain had been provided and the mine was in good condition. I ordered a new drag made for the ascending cars. On August 12th the mine was idle caused by the low water. I did not make a thorough inspection. This mine has furnace ventilation and employs twenty miners and six day hands.

BELMONT NO. 1

Is situated on the Ohio River, near Bellaire. It is owned and operated by the Belmont Coal Company. William Crozier is mine boss. It was visited December 8th and March 3d and found in good order on both occasions. I tested three pairs of scales on the first visit and found them correct. Six miners and one day hand are employed.

BELMONT NO. 2

Is located near No. 1 and is owned and operated by the same company. W. S. Heatherington is superintendent and Joseph Jeffers mine boss. It was visited December 8th, March 1st, April 7th and July 12th. I tested the scales on my first visit, finding them correct. A mysterious fire occurred in this mine in the latter part of December. It originated at the first passway on the main entry, a point at which it would be impossible for a spontaneous combustion to occur, and it is generally believed that it was either intentionally or unintentionally set on fire. It was exceedingly dry and dusty at the point where the fire occurred and the timbers could be easily ignited. The fire department was called and they fought it manfully, but their efforts resulted similarly to all past attempts to extinguish an advanced underground fire by water without submersion. Their next effort was more successful. The air was closed off, which was done by erecting a fan at the pit mouth and bringing the air from the surface through mine No. 1 until a bulk head could be erected behind the fire. The fan was then reversed and another built in front of the fire and the entry was left closed until March 1st. They then succeeded in connecting another entry by driving around the closed portion of the main entry. When the connection was made we went in behind the fire. We discovered no heat on the bulk heads but encountered an intense odor arising from the dead rats which had perished in the mine, and the scorched condition of the coal. I requested some lime scattered in the affected parts and ordered a full current of air forced through the mine at least two days before the men were allowed to enter. On my next visit I found some improvements made by clearing the air course of obstructions. I found two places ahead of the air and stopped them until the air was brought up. Robt. Fielding had superseded Joseph Jeffers as mine boss. On my last visit I found the mine in good order. Fifty-seven miners and eight day hands were employed.

SCHICKS

Is located on the B. & O. Ry. one mile west of Bellaire, and it is owned and operated by James Turnbull who is also sole manager. It was visited

December 9th, March 9th and October 5th. I found the mine in fair condition on the first two dates, while on the last visit I found that obstructions in the furnace entry were decreasing the air measurements and I ordered the airway cleaned out. This mine is a drift opening which employs fifty-five miners and six day hands.

ROBISON

Is situated one mile west of Bellaire on the B. & O. Ry., and is operated by George Robison. It was visited as follows: December 9th and March 9th and 20th. On the first visit I found that the stack had been blown down, the furnace blocked with ashes and without a fire, the stoppings were impaired and one clay room was forty-five yards from the air current. This I stopped until it was aired and gave all directions necessary to place the mine in good condition. I also ordered a fire kept in the furnace at all times when the miners were working. On my return I found all previous orders complied with, with the exception of airing the clay rooms and they were being worked again. I stopped them until the air course could be cleaned and a door erected. I returned ten days later and found the orders obeyed and the mine in fair condition.

ZELCH

Is situated one mile west of Bellaire, and is operated by John Glasgow & Son. It was visited December 9th and found to have but one opening. I gave the required orders and returned March 9th, to find that no improvements had been made and the mine badly flooded. I returned again March 20th but Mr. Glasgow had ceased operation, claiming that his limited trade would not justify the expense necessary to place the mine in a legal condition.

NAIL MILL

Is situated at Bellaire, and is operated by the Bellaire Nail Works. Chalkley Dawson is superintendent and William Turnbull mine boss, until superseded on September 1st, by J. L. Long, Jr. It was visited December 10th, March 7th, June 9th and 30th, and September 2d. I found the mine in good order on the first two visits and idle the next two. A difference arising on May 1st between the company and the miners' union concerning the scale of prices, resulted in the company closing down the mine and buying their coal elsewhere until September 1st, when they resumed operations with non-union men. I made an inspection on September 2d, and found it in good condition. John Conrade, a driver, was instantly killed December 31st, while attempting to pass over his trip in the stone arch in the main entrance. He lost his balance and fell head downward between the cars. His head was crushed between the bumpers of the car and the road tie. An investigation proved that his work did not require this venture and no blame could be attached. Thirty miners and five day hands were employed on the last inspection. This mine is a drift opening and has furnace ventilation.

BERNARD.

This mine is located in Bellaire, and is operated by James Anderson, administrator; William Kinsey is manager. It was visited December 10th, March 8th and July 1st. On my first visit I learned with much regret that Mr. Bernard had lost his life by being run over on the incline at the pottery by a truck loaded with clay.

The timbering ordered on the previous visit had not as yet been completed owing to the changes produced by Mr. William Bernard's misfortune. On the second visit finding the timbering still lacking, I called upon Mr. Anderson, acquainted him with the dangerous condition of the mine, and requested the necessary improvements. He guaranteed that he would either make the improvements or close the mine. On my last visit I was pleased to find that the repairs had been made. One hundred and twenty-five pairs of timbers had been erected, four brick stoppings had been placed at points where black damp was generating and the mine was in good order. This is a drift mine, has a good furnace and employs seven miners. O. G. Kinsey has superseded Wm. Kinsey as manager.

DAVEY

Is located four miles west of Barnesville, on a line of the B. & O. Ry., and is operated by W. C. Davey with Thomas Davey as manager. It was visited December 20th, March 16th and April 21st. On the first named date I ordered two break-throughs made and checks placed on the necks of two rooms. I also stopped the third room until the orders were complied with. On the second visit I requested two stoppings made. I found all orders complied with on the last inspection, and the mine was in good order. This is the mine from which the writer secured the fine specimens of fossils for the World's Fair exhibits and I wish to express my obligations to Mr. Davey for his assistance in securing the specimens.

JAMES KENNON

Is situated two miles north of Barnesville and is owned, operated and managed by James Kennon. It was inspected December 28th and August 14th and each time found in good condition with the exception of the escapement way, which was being pushed as fast as trade would permit. This mine is a drift opening and has natural ventilation and the seam is three and one-half feet in thickness. From one to three miners are employed in the various seasons of the year.

KIGER NO. 1

Is located near Barnesville, and was formerly operated by Frazier & Dyer, but now Luke Frazier is sole owner and manager. It was visited December 27th and August 14th. On the first visit I found the air course referred to in my previous annual report had not reached completion, but was being driven as fast as circumstances would permit. On the last visit I found the connection made and the mine in excellent condition. It has natural ventilation and employs three miners.

KIGER NO. 2.

This mine is located two miles north of Barnesville and is owned, operated and managed by Jacob Kiger. This is an old mine which has been reopened. It was visited December 28th and August 14th. On my first visit I ordered an air shaft provided as the old mine had pierced the hill to the extent of one hundred yards and had never been provided with a return air course. Quite a distance had to be driven before a suitable point for the opening could be reached, however, we designated the location and Mr. Kiger started the entry. On my second visit the terminus had not been reached, but it was nearing the point as fast as circumstances would permit. This mine is a drift opening and employs two miners.

WILD CAT.

This mine is situated one mile north of Barnesville. It is a drift opening made this year. E. Fohner is owner, operator and manager. It was visited December 27th and August 14th. On my first visit, I found them driving for an old drift mine for the purpose of securing an air course. I ordered it double shifted and requested them to use no powder until the connection had been made, as the coal worked to a good advantage without it. On my next visit I found the mine drowned out by water and it has remained suspended during the remainder of the year.

MALDON

Is located near Barnesville, and was formerly operated by Maldon & Walton, but since the death of Mr. Maldon, S. F. Walton is sole manager. It was visited December 27th and August 6th. On my first visit I found the miners all working to the dip along the main entry, taking advantage of the dry season to secure some coal which would be very unprofitable to work when the earth was full of water. On my second visit I found work just resuming after six weeks' idleness. E. Fohner was lessee and manager at this date and the mine was in good condition. Seven men were employed. Furnace ventilation is used.

KENNON

Is situated near Barnesville, and is managed by Gibson Dyer. It was inspected December 28th and August 14th. On the first named date I inspected the air shaft and furnace as referred to in a recent annual report, and found the mine in good condition. Five miners are employed. This mine has a drift opening.

DOUGLASS

Is located two and one-half miles north of Barnesville, and is owned by Geo. Douglass, of Barnesville. Benjamin Grubbs and A. J. Clark are managers. It was visited December 28th and August 14th. On my first visit I found it to be a new opening and advised it driven on the double entry system. On the last named date I found that but little work had been done since my previous visit.

GLEN.

This mine is located one-half mile east of Glenco, on the B. & O. Ry., and is operated by the Glen Coal Company. Mr. W. G. Simpson is superintendent and J. C. Fryman mine boss. It was visited February 27th, July 10th and October 3d. On my first visit I found it necessary to order a fan as the increase of forces made natural ventilation unreliable. On my next visit I found the fan in operation but not properly constructed and I gave orders for the necessary changes. On my last visit I found the improvements made as directed and 24,000 cubic feet of air in circulation. I ordered a drag used behind ascending cars. Twenty-four miners and six day hands are employed.

O. & W. VA.

Is situated on the St. Clairsville branch of the B. & O. R'y, and is operated by the O. & W. Va. Coal Company. It was visited February 28th, July 13th and October

4th. On the first visit I found some obstructed break-throughs and one polluted air course. I ordered the obstructions removed, the personal filth buried and forbade further practices of committing nuisances in air courses under the penalty of the law. I also insisted on the escapement way being double shifted and pushed to completion as speedily as possible. On the second visit I found the previous orders complied with and the mine in good order. The point had been reached for the escapement way, but the land owner had objected to opening to the surface and caused some delay. A compromise was made and the shaft was to be started on the 16th inst. On my last inspection the escapement way was completed, a good ladder provided and the mine was in excellent order. This is a drift opening, has furnace ventilation and employs fifty miners and five day hands.

BLACK DIAMOND

Is located on the St. Clairsville Branch of the B. & O. R'y, and is owned and operated by the Troll Bros. C. Troll is superintendent and Michael O'Grady, mine boss. It was visited February 28th, July 13th, and October 4th. On the first named date I requested the obstructions removed from the break-throughs, the furnace repaired, the stack increased in height and a plank tramway made over a body of water which had collected in a dip in the main entry. On the next visit I found the mine idle owing to a lack of orders for coal, but the furnace was undergoing repairs. I also found it idle on my last visit. Twenty-five feet of brick stack had been added to the air shaft and the furnace had been made complete.

SCAHILL

Is located at Bellaire and was owned and operated by Patrick Scahill with Leander Nixon mine boss until October 1st, at which time Cline & Jeffers leased the mine and took full charge with August Cline superintendent and Joseph Jeffers mine boss. It was visited March 3d, June 9th and November 4th. On my first visit I found the drainage impaired, the traveling way in bad condition and some of the stoppings impaired. I ordered all the necessary improvements made. On my return I found the mine had done but little work since my previous visit and the conditions were about the same, but Mr. Scahill assured me that when demands for coal increased he would improve the mine. On my third visit I requested a survey made of the place being used as an escapement way to ascertain how near it was to the old mine with which he was trying to connect and requested the drainage and some timbering repaired. On my last visit I found the new company in charge and they had made some noticeable improvements. Nine miners and two hands were employed.

STANDARD

Is located at Ætnaville and is owned and operated by the Standard Coal & Iron Company. W. G. Graham was superintendent and O. M. Davis mine boss, until about September 1st, when the mine was connected with the Ætna mine by the main entry being driven through and the Standard and Ætna Company having consolidated their interests. The two mines will be known hereafter as the Ætna-Standard. It is now under the general management of Mr. Roger Ashton. The mammoth furnace in the Ætna mine will provide air for both mines, thus saving the trouble of looking after two furnaces. It was visited March 2d, June 17th, September 1st, October 31st and November 13th. On my first visit I requested three brattices erected and two doors repaired. On the next visit I tested the scales

and found them bound in the construction, they being new scales recently erected. I ordered them made free before any further weighing was done. My third visit was to investigate the accident whereby Barney Koehber lost his life. I found that the accident occurred at the face of the entry he was driving. I regard it as purely accidental and attach no blame. On my next visit I found the connection made and both mines in excellent order. On the last named date I was accompanied by the Chief Inspector, when a small fire in the furnace produced 33,000 cubic feet of air per minute.

ECHO

Is located on the St. Clairsville branch of the B & O. R'y. S. H. McGregor has superseded J. B. Butler as operator and manager. It was visited February 28th, July 13th and October 4th. I found the mine idle on my first visit and but little work had been done since my previous inspection. On my second visit I found the pit mouth enlarged and newly timbered and the road panked. On my last visit I ordered some broken timbers replaced by new ones; otherwise the mine was in good condition. Three miners and one day hand are employed.

FRANKLIN

Is located on the B. & O. R'y, seven miles west of Bellaire, and is owned and operated by Mr. Owen Meehan who is a superintendent and W. T. Smith mine boss. It was visited March 6th and 27th, July 14th and October 6th. On my first visit I requested the air ways cleared of obstructions and the doors and stoppings repaired. My next visit was in response to a call to investigate an accident whereby Edward Vincent lost his life. He was in the act of drawing posts when a piece of stone fell, catching him between the stone and a standing prop and causing instant death. This company employs professional post drawers and leave to the option of the miners whether or not they shall draw their own posts. Mr. Vincent preferred drawing his own, and being regarded as a practical man he was permitted to do so. The usual investigation could attach no blame. On July 14th, I found the mine in good condition. The entry being driven for the escapement was being pushed as fast as possible. On my last visit I found the drifting from the outside for the escapement way would soon be completed. The mine was in good condition. Seventy-one miners and ten day hands are employed.

HESLOP

Is located near Bellaire and was formerly operated by Heslop and Fitch. It was visited March 8th and July 21st. On the first visit I found the mine idle, it having shut down for the summer as trade would not justify operation. On my last visit Galligher and Davis had taken charge as owners and managers, and with the exception of a fall near the furnace the mine was in good condition. I requested the obstruction removed. Two miners are employed.

MORGAN & GORRELL

Is located in Bellaire and is owned and operated by Morgan & Gorrell. It was visited March 8th, June 30th and October 6th. On my first visit I found the air course referred to in the previous annual report near completion. I requested some loose top taken down in the main haulway and a pipe arranged to carry the exhaust steam away from the fan. On my next inspection I found a new air shaft

almost completed and the mine in a fair condition. On my last visit I found the air shaft completed, the fan moved to this opening and the mine in fair condition. I requested two stoppings made to close off some carbonic acid gas that was escaping into the air and advised a connection made with the Pelkey mine, both mines to be ventilated by the fan and thus avoid cleaning a long piece of air course. Eight miners and one day man are employed.

CUMMINS

Is located in Bellaire and is operated and managed by John Musgrave. It was visited March 9th and 20th. I ordered a larger furnace built on my first visit and found the order complied with on my return. I found it necessary to make some changes on the furnace after which we tried it and it worked successfully. This mine employs from three to six miners in the various seasons of the year.

CAPTINA.

This mine is located near Armstrong's Mills on the B., Z. & C. R'y. It is operated by the Captina Coal Company with William Welsh superintendent and M. V. Gates mine boss. It was visited March 10th and 28th and July 20th. On my first visit I found one of the safety catches and one of the guides in the shaft out of repair. I posted a notice forbidding any persons to ride on the east cage until the repairs were made. On my next visit I found all previous orders complied with. A new guide had been placed in the shaft and the safety catches repaired. On my last visit I found the mine idle, owing to a broken shaft. Sixteen miners and one day hand are employed.

BROOKS

Is located near Bridgeport and was formerly operated by Boston & Porter, but Alonzo Sells has purchased Porter's interest and the firm name now is Boston & Sells. David Boston is superintendent and Alonzo Sells mine boss. It was visited March 22d and September 1st. On the first named date I found much of the timbering previously ordered done, and the general condition of the mine improved. On the last inspection I ordered the stoppings and doors repaired and more timbering done. Six miners and one day hand are employed.

KEOHNLINE NO. 1

Is situated at Ætnaville and is owned and operated by the Koehline Bros. Wm. Koehline is superintendent and Nicholas Zimmers mine boss. It was inspected March 22d and September 1st. On the first named date I ordered one brattice erected, some timbering done in the main entry and the furnace well fired. On my last visit I found the mine in fair condition for the small force of men employed.

KEOHNLINE NO. 2

Is located near Martin's Ferry and is owned and operated same as No. 1. It was visited March 22d and September 1st. I found it necessary to order an air shaft sunk on the first visit and found the order complied with on my return. The mine was then in fair condition. Four miners and one day hand are employed.

MC CONAUGHY.

This mine is situated at Bridgeport, and is operated and managed by Jas. McConaughy. It was visited March 23d and August 31st. On my first visit I stopped two rooms until break-throughs were made, and ordered one stopping and one check erected. On my last visit, previous orders had been complied with, but I discovered that the escapement way was not available, and requested a connection made with the old Seabright mine for an escapement way. Four miners and one day hand are employed.

LEPHART

Is located in Martin's Ferry, and is operated by Burns & McCabe. It was visited March 24th and September 1st. On my first inspection I ordered a door erected and the air shaft enlarged at the bottom. On the last date I found that previous orders had been complied with and the mine was in good order. An iron basket has been placed in the air shaft. Five miners and one day hand were employed.

HELLINGS

Is located at Martin's Ferry, and is operated by Hellings Bros., with Lewis Hellings, manager. It was inspected March 24th and July 11th. On the first visit I found four rooms working from a single entry without doors being provided. I stopped the places; ordered break-throughs made; three doors erected and the ashes removed from the furnace. On my last visit I found previous orders complied with, and the mine in fair condition. Two miners are employed.

BOGGS

Is located on the St. Clairsville & Northern Ry., and is owned and operated by E. N. Boggs, who is also superintendent, and H. C. Davis mine boss. It was visited March 21st, April 18th and November 3d. On the first named date I ordered three stoppings made and some obstructions removed from the air ways. I also ordered a new surface entry, either driven double or worked in from the surface. On my second visit I found previous orders complied with and the mine in fair condition. I found the mine idle and hence no inspection was made. Eighty miners and eight day hands find employment here. Furnace ventilation is used.

DEHASS

Is located at Martin's Ferry, and is operated by Paxton Bros. John Paxton is manager. It was inspected March 24th, when previous orders had been complied with and the mine was in fair condition. This mine is a drift opening, has furnace ventilation and employs three miners.

MAPLE HILL

Is situated on the C., L. & W. Ry., near Barton Station, and was formerly operated by John Dunham, but is now owned and operated by the Maple Hill Coal Company. W. P. Williams is superintendent and Addison Taylor mine boss. It was visited March 21st and found idle. I returned June 8th, and found that a recent fall had obstructed the air course and requested it removed. On my last visit I found the mine idle but in fair condition. Fifty miners and five day hands were employed. This mine is a drift opening and has furnace ventilation.

TAGGART'S

Is located on the St. Clairsville & Northern Ry. It resumed operations October 8th, under the firm name of Boggs & Williams. with W. P. Williams superintendent and Newton Ayers mine boss. On February 14th, Mr. Williams purchased Mr. Boggs' interest and became sole owner, but the same management continued. It was inspected March 21st and November 3d. On my first visit I found the ventilation good. The drainage was impaired, but a siphon was being placed in the mine. On my last visit I found that Mr. Joseph S. Schwinder had superseded Mr. Williams as operator and John Sanders was mine boss. A new air course had just been completed and the mine was well ventilated. I called attention to some loose stone and requested it taken down before further operations. Twenty-six miners and four day hands are employed.

LAUGHLIN

Is located near Martin's Ferry, and is operated by the Laughlin Nail Company. William Glessner is superintendent and Leander Woods mine boss. It was visited March 24th and July 11th. On the first named date I requested two break-throughs made and the furnace well fired. My last visit found the mine idle owing to the mill having suspended operation. This mine furnishes employment for sixteen miners and two day hands.

MEISTER

Is situated in Kirkwood, and is owned and operated by the Meister Bros. J. H. Meister is superintendent and Chas. Meister mine boss. Inspections were made March 23d and August 31st. I found negligence in firing the furnace and took the men out and posted notice forbidding them to reenter unless the furnace was properly fired. On my last visit I found that the air travel had been shortened by a new entry connected with the furnace entry and that the road had been planked. The mine was in excellent order. Four miners and one day hand are employed.

WHEELING CREEK NO. 1

Is located on the C., L. & W. Ry., two miles north of Bridgeport, and is owned and operated by the Pittsburg & Wheeling Coal Company. J. E. Waters is superintendent and Walter Biddington mine boss. It was visited March 30th and 31st, September 8th and November 13th, and each time found in good order. Twenty-eight feet had been added to the furnace stack during the year, which made a noticeable increase in the air volume, and it is a pleasure for me to say that Mr. Biddington is ever vigilant in guarding the welfare of the miners, and spares neither time nor expense in making them as comfortable as possible. Much to my regret I was called on the last visit to investigate an accident which resulted in the death of Mr. James Vaughn. The usual investigation resulted in no blame being attached to any one. A natural smooth in the stone deceived the victim. Mr. Vaughn had helped to open the mine and had worked in it during its history, and was regarded as a practical man in every sense. It demonstrates the fact that dangers are ever lurking over the most efficient miners and no chances should ever be taken in any case. This is the largest mine in my district, employing 290 miners and thirty-four day hands, and this is the first fatality during the two and a half years that I have visited it.

WHEELING CREEK NO. 2

Is located near No. 1, and is owned and managed by the same parties. It was inspected March 30th and September 9th, and found in good condition on each visit. Seventy-seven miners and ten day hands are employed. This mine has furnace ventilation.

WHEELING CREEK NO. 3

Is located near No. 1, and is owned by the same company. Was visited September 9th and found idle.

PITTSBURG NO. 1.

This mine is located on the C., L. & W. Ry., and is owned and operated by the same company as the Wheeling Creek Nos. 1 and 2. J. E. Watters is superintendent and William Dorn is mine boss. It was visited April 4th and 18th, June 9th and November 2d, and on each visit it was found in good condition as could be expected in a mine working home in the No. 8 seam of coal where carbonic acid gas generates so freely. It is presumed that this mine will be finished in about six months. Much credit is due Mr. Dorn for the efficient and economical manner in which he has worked this mine during my official relations with him. On April 18th I tested the scales, finding them correct. One hundred and eighty miners and twenty-five day men are employed.

PITTSBURG NO. 2

This mine is located near No. 1 and is owned, operated and officered by the same parties. It was visited April 4th, June 29th and November 2d. It is working home also, and was found to be in as good condition as could be expected from a mine so near completion. Ten miners and three day hands were employed on my last visit.

WALNUT HILL

Is located on the C. & P. Ry., near Yorkville, and is owned and operated by the O. & P. Coal Company. W. H. Ewing is superintendent and W. H. Vandine mine boss. It was visited March 29th and July 11th. On the first named date I found that the break-throughs had been cleaned of obstruction and the mine was in good condition. I found it idle on my last visit, owing to the dullness of trade. There were no prospects of resuming operations and hence no inspection was made.

GAYLORD

Is located two miles east of Martin's Ferry and is owned and operated by the Gaylord Coal Company. Mr. William Watkins has superseded the former managers. It was visited March 29th, July 11th and November 8th. On my first visit, I requested the new furnace entry double shifted and the terminus reached as early as possible. I also forbade any increase of forces until the new air shaft was secured. On my second visit the point for the shaft was reached and preparations were being made to sink it. On the last inspection the shaft was completed and the brick were on the ground for the furnace which was to be erected soon after. Thirty-two miners and six day hands were employed.

PELKY NO. 2

Is located in Bellaire and is owned and operated by Israel Pelkey who is sole manager. This is a new drift mine opened this year and is provided with an air shaft and furnace. It was inspected June 30th when I ordered break-throughs made as directed by law. On my last visit I found the orders complied with and the mine in excellent order. I advised a connection made with this mine and Morgan's as an escapement way for both mines. Three miners and one day hand were employed.

WHEELING VALLEY

Is located on the C. L. & W. Ry., one mile north of Maynard. T. C. Whitehead has superseded Mr. Coleman as operator and manager and Tobias Haught is mine boss. It was visited April 5th, June 27th and November 2d and 15th. On my first visit I ordered the inlet cleared of obstructions. No changes had been made on my return and the air was deficient. I stopped one section of the mine and opened a door giving the least obstructed travel to the current until the improvements could be made. On November 2d, I found the point for a new escapement reached but the land-owner objected to a surface opening. I insisted upon the opening being made and returned November 15th to offer any assistance the department could send in forcing the opening, when Mr. Whitehead informed me that a compromise was about to be effected and if he continued to operate the mine the opening would be made. This will remedy the deficiency in the air as well as to provide an available escapement way.

ROCK HILL.

This mine is located on the C., L. & W. Ry., one mile north of Flushing, and is operated by the Rock Hill Coal Company. It was visited January 4th, April 16th, June 28th, July 19th and November 1st and 14th. Finding that the timbering ordered on the previous visit in the main entry had not been commenced, and that the dangers therein had increased, I forbade any further travel until the entry was made safe. I also requested an opening made near the furnace to admit the fireman, and avoid his traveling a long entry, the air of which was badly charged with black damp. I also requested the obstructions removed from the air courses. On the next date, I found a portion of the improvements made. The main entry had been timbered in a rude manner and was in pretty fair condition. On this visit I requested an air shaft sunk at the head of No. 21 entry and a furnace located therein. On July 19th, I found the fireman still encountering danger in traveling through carbonic acid gas and that the sinking of the shaft had not yet been started. I posted a notice forbidding all persons to travel to the furnace from the inside and forbade any increase in the force until the air shaft was sunk. On November 1st, I found both openings completed. The opening to the furnace had been finished in two days after the mine was stopped but the air shaft had struck directly on a pillar between the two old rooms and was not a safe place to erect a costly furnace and I did not insist upon its provision. I found that a fall had choked off No. 16 air course and that they had changed the air travel back to old No. 11 and 12 entries which had been previously abandoned as air courses, owing to their badly obstructed condition and no effort had yet been made to remove the obstruction. On November 14th, I found the return just as I had left it. The Chief Inspector was present on this visit and authorized me to give ten days for repairs and then reduce the forces to the degree of air if not complied with. This company has done

sufficient work and has had sufficient experience to have the mine in excellent condition with good permanent intakes and outlets, but they always seem disposed to think that a makeshift for the time being is the most profitable, therefore this mine has never been in condition that I could insure myself that it would remain in repairs from one visit to the other. I have given it extra attention on that account and had I got the shaft located where I requested and a good furnace erected, we would have overcome the continued trouble in contending for the required amount of air. If the indifference still continues with the makeshift methods, so will the occasional closing down be necessary. Sixty-one miners and ten day hands are employed.

FLUSHING

Is located near Flushing, and is operated by the Flushing Coal Company, with W. G. Williams as manager. It was visited April 6th, June 28th and November 1st and 14th. On the first visit I found the air deficient at the extreme working faces and some impaired stoppings. I requested the necessary improvements made. On my second visit I found the orders complied with and the mine in good order. It was idle on the last two visits. November 1st, the fan engine was undergoing repairs, and on the 14th, I found them idle for want of orders. This company mines all the coal with machines. Fan ventilation is used and fifty-five men are employed.

BELMONT.

This mine is located near Kidd's P. O., and is operated by William Stillwell who is also sole manager. It was visited April 5th and was found just resuming operations after several weeks' idleness. I found a poor fire in the furnace and the air foul in the mine and I brought the miners out until the current was brought up to the standard and the mine cleaned out. On June 8th I found that the mine had been idle since my first visit and continued so throughout the remainder of the year.

CANNON NO 1

Is located near Flushing, and is owned by Dr. Hobson. It was visited April 6th and June 28th and was both times found idle, as it remained throughout the year.

WEGEE.

This mine is located at Wegee, on the Ohio River, five miles below Bellaire, and was formerly owned and operated by Peter Shaver, with J.K. Shaver as manager, but is now operated by J. K. Shaver and J. S. Ambler, who are also sole managers. It was visited April 19th and August 11th and found in fair condition on each visit, but it is operated so little that it is almost an abandoned mine. Three miners and two day hands are employed.

BURCH

Is located one mile west of Bellaire, and was formerly operated by Burch and Schram, but now is operated under the firm name of Burch & Probst who are the sole managers. It was visited July 22d, when I found a new air shaft almost completed. With this improvement added the mine would be in good condition. Three men are employed.

FIELDING

Is a slope mine located near Powhatan, and is owned and managed by Samuel Fielding. It was inspected August 10th. I ordered two stoppings erected and advised an effort made to make an escapement way as soon as convenient in order to comply with the law. There was not the required amount of natural strata between the two present openings. Two miners are employed.

SCHNEGG

Is situated in York township four miles from Powhatan, and is operated by the Schnegg Bros. John E. Schnegg is manager. It was visited August 10th when but one room had been turned since previous visit. I discovered the presence of fire damp and ordered a steam jet placed in the upcast in order to increase the air current sufficiently to guarantee safety and ordered strict discipline in examining the mine each morning with the safety lamp before the men enter. This is a shaft mine and employs four miners.

GREEN

Is located three miles west of Powhatan, and is owned, operated and managed by L. H. Green. It was visited August 11th when I found the second opening provided, and with one stopping added which I ordered, the mine would be in fair condition. This mine has natural ventilation and employs three miners.

SCHAPPATT

Is located five miles south of Powhatan, and is operated by C. W. Bonar. It was inspected August 10th when I requested one break-through made and one door repaired. One miner was employed. This mine has natural ventilation.

SHEETS.

This is a new drift mine located at Martin's Ferry, and opened this year. Casper McCabe is operator and manager. It was visited September 1st. The air shaft was down and the connecting entry was being driven. Two men are employed.

KIDD'S NO. 2

Is located on the B. & O. R'y near McClain's Station. It is owned and operated by Mr. Robt. Kidd. It was visited March 20th, June 12th and October 4th. On my first visit I ordered a brattice erected and the main entry drained. On the following visits I found the improvements made and the mine in good condition. Forty-three miners and four day hands are employed.

GUERNSEY COUNTY.

CISCO

Is located near Pt. Pleasant, and is owned and operated by the Cisco Mining Co. G. P. Bird is superintendent and mine boss. It was inspected December 6th and

17th, April 17th and 20th, June 5th and August 22d. On my first visit I found that a stairway had been placed in the upcast as a traveling way for the miners and that the exhaust from the pump at the bottom of the shaft made it unpleasant as well as dangerous traveling. I ordered an exhaust pipe provided to extend above the shaft and convey the steam to the surface. On the next visit I found the pipe had been secured and preparations were being made to place it in position the next day. At this time eighteen men were working on the day shift and twelve men at night. The main entry had run into a horseback which was being pierced in view of getting an escapement way on the other side and thus avoid driving a double entry through the fault for a return of air. On my return visit, April 20th, I found that the escapement way was not provided and fifty-four men were at work in the limited coal field on the side of the fault, and the limit of the law demanding an escapement way having been passed, I posted a notice at the stair entrance forbidding more than twenty men from working in the mine at one time, in accordance with section 297 of the mining law. I returned April 20th and found the shaft under headway and on June 5th I found the shaft completed and a good stairway provided and the mine in excellent condition. On my last visit they had gotten through the fault at a distance of 313 feet and everything had the appearance of a good coal field beyond. This is a shaft mine, has fan ventilation and employs about one hundred men.

OHIO VALLEY.

This mine is located near Pt. Pleasant. This is the mine referred to in the editorial of my previous annual report as being designed by Mr. Anderson (now deceased) and no company has yet been recorded. Gen. Wykoff is managing agent, William Smith is superintendent, and H. C. Andrews mine boss. It was inspected December 6th and 21st, April 17th, June 5th and August 22d. On my first visit the tibble was undergoing erection and they were driving 500 feet of main entry in order to get the grade of the track before the lower landing would be established. The coal was being hoisted in boxes by the sinking engine and conveyed to the shaft bottom on trucks. A small fan and brattice were used to ventilate this entry which was being driven single. On my second visit I found the grade established and preparations being made to locate the lower landing. On my return visit I found them driving the air course to correspond to the distance which the main entry had advanced. Ten miners and twelve day hands were employed. The latter were placing the tracks in position at the shaft bottom. On June 5th I found the escapement completed and the stairway being erected. I discovered in various places collections of petroleum oil that had dropped from crevices in the roof, also accompanied with gas. A large fan had been erected and I ordered the air kept well to the front and requested the oil kept from accumulating in puddles in the mines by hoisting it out. Sixty-five miners were employed and the mine was in excellent condition. When fully completed this will be as fine a shaft mine as any in the state. Most of the work will be done by machinery.

HARTFORD

Is located near Hartford, and is owned and operated by the Cambridge & Elyria Coal Co. J. C. Hill is superintendent, and James Moss mine boss. It was visited December 6th and 22d, February 8th and 9th, June 6th and August 25th, and each time the mine was found in excellent order. The hoisting boilers gave out in June and much time was required before the new ones could be secured. A single boiler was provided and local trade supplied during the remainder of the summer which provided work for fourteen miners. The boilers have now been provided and the mine is resuming operations for the winter's work. This mine has the finest field

of coal yet developed in this district, none being less than six feet in thickness. My visits on February 8th and 9th were for the purpose of securing a lump of coal for the World's Fair. This was six feet four inches in height and pure coal. I wish to add that the management spared no pains in making their exhibit a success. This is a shaft mine, has fan ventilation and works 100 men.

NICHOLSON

Is located three miles south of Cambridge and is owned and operated by the Ohio Coal Company. Mr. S. C. Hayt is superintendent, and C. W. H. Kreikenbaum is mine boss. It was visited December 5th and 21st, March 16th, June 20th, August 5th and October 10th. On the first visit I ordered a check door erected. My second visit found the mine idle. On the third inspection I found a new rope provided and the mine in good condition. On the fourth visit the mine was idle. On the last named date I tested the scales and found them obstructed with dirt. This mine furnishes employment for thirty-eight men.

GANDER HILL

Is an extension of the Nicholson mine into the Gander farm. It is owned, operated and managed the same as the Nicholson. I visited this mine December 5th and 20th, March 30th and June 20th. On my first visit I found the escapement way and an air shaft and furnace provided, with a capacity of producing 40,000 cubic feet of air per minute by forcing the fire. My second visit found the mine idle. I ordered two doors erected and forbade travel on the rope haulway, as I discovered that some of the miners were preferring chances through the hill rather than to walk over it, and as there were no manholes in the connecting entry, travel through the hill was extremely perilous. On my last visit I ordered some loose stone taken down on the main passway. I also ordered the furnace fired on days that the men were in the mine preparing coal. Mr. Kreikenbaum has spared neither labor nor expense in putting the mine in fine working condition, yet we very much regret that the present outlook for a good coal field is not very flattering. The rope haulage is extended into it and is working successfully. Seventy men are employed.

NORRIS

Is located on the B. & O. Ry. five miles east of Cambridge, and is owned and operated by the Leathernwood Creek Coal Company, with Mr. A. W. Brown superintendent and George Phillips mine boss. It was visited December 15th and 26th, March 13th, June 14th and August 19th. On my first visit I found the mine in fair condition. On the next inspection I found some improvements made on the drainage and the haulways shortened by cross cuts. One room was ahead of the air limits. This was stopped until a break-through could be made. With this exception the mine was in good condition. On my fourth visit I found an increase in forces, eighty-four men being employed and only 9,000 cubic feet of air at the inlet, this being about the full capacity of the furnace. I requested some obstructions removed from the return air course, the stoppings tightened and safety blocks used behind the ascending trips. On my next visit I found the previous orders had been complied with and the air volume increased. I requested the main entry door repaired. On my last visit I found the air deficient on Nos. 5 and 6 east entries, caused by open stoppings. I requested them daubed with mud. While this furnace will provide the lawful amount of air, its capacity is too small to produce much surplus; hence it requires strict attention at all times to guarantee the required amount. As

the company has reached the extreme limits of their coal field, the air travel will be shortened and the friction reduced in working home, consequently the volume will be increased; for this reason I did not insist upon additional power under the circumstances. This mine is equipped with an endless rope haulage, and employs eighty-four miners.

BRIAR HILL NO. 2

Is situated two and one-half miles south of Cambridge, and is operated by the Standard Coal Company. O. P. Mathews is superintendent, and John Kappes mine boss. It was visited December 12th and 21st, March 16th, April 3d, June 4th, August 5th, September 19th and October 11th. On the first visit I discovered a deficiency in the air measurement, caused by a recent fall in the air shaft behind the furnace, and ordered the fall removed. I was accompanied by the Chief Inspector on the second visit, and finding the obstruction still behind the furnace, the Chief posted a notice forbidding all miners from entering the mine until the obstruction was removed. On my third visit I found considerable loose stone over the main entry, and posted a notice forbidding all persons from entering the mine until this stone was taken down. My next inspection found previous orders complied with and the mine in fair condition. They were drawing pillars on No. 5 entry, and were beginning at the entry and taking the pillars ahead of them, making the work very hazardous. This I stopped and ordered them to begin at the back end first, with the last man ahead and so on, that all might have a ready retreat in case of a fall. On the fourth visit I found the ventilation fair, but advised the stoppings and doors repaired. On August 5th I found three doors and one brattice repaired and some stone taken down. On September 19th I found that the concussion from a heavy fall in the robbed workings had damaged many of the stoppings and almost closed the air course at one point. I ordered all the necessary repairs and the orders were complied with at once. On the last visit I tested the scales and found them correct. Forty-three men were employed.

PIONEER.

This mine is situated near Byesville and is owned and operated by the Pioneer Coal Company. It was visited December 13th, March 17th and August 23d. On the first-named date I found the mine in good condition. On the next inspection I found that the escapement way had no ladder in it, and I ordered one provided. I also requested stop blocks placed behind ascending cars on the incline. On the last visit the ladder had been provided, but the safety blocks were not in use, the management claiming that anything that I could suggest would prove detrimental to the working of the mine; otherwise the mine was in good order. This coal field has been troubled considerably with a fault, and the economical method that Mr. Davis has practiced in working around this trouble, where no regular system could be followed, reflects great credit upon his efficiency as a mine manager. It is a slope mine, has fan ventilation and, at the last time it was visited, it employed 163 miners and twelve day hands.

FARMERS

Is located near Byesville and is owned by the Anderson heirs and Mr. Cope. William Smith is superintendent, John Hood, mine boss. I visited this mine December 14th, when I found the Barnett entry generating considerable carburetted hydrogen gas. I ordered the air kept well to the front at all times and the entry examined each morning by the fire boss before the miners enter. I also ordered the loose

stone over the haulways taken down. On May 30th lightning struck the tippie at this mine, from which fire resulted and consumed the entire buildings, rendering all outside machinery worthless. Since then this company has been enlarging the shaft and rebuilding. They are adding all the modern improvements obtainable and will soon resume operations with a plant that will greatly add to the advancements made in mining in this section of the state in recent years.

FORSYTHE

Is situated on the B. & O. Ry. four miles east of Cambridge, and is owned and operated by the Forsythe Coal Co. It was visited December 15th, March 14th, August 3d and September 18th. On the first named date I found the shaft down for the escapement way, but the entry had not reached it yet. I requested this entry pushed to the terminus as fast as possible, and a new door repaired. On the second visit I found the escapement way completed, and I ordered a ladder placed in the same and a drag used behind the ascending cars. On the third visit I found the mine idle, caused by a strike over the discharge of the mine committee. On September 18th I found the mine just resuming work with eleven men. The stoppings had settled some during the idleness, otherwise the mine was in fair condition. C. P. Forsythe is superintendent and Emmet Kinsey mine boss. This is a slope mine and has steam jet ventilation. It is opened in a very rich coal field.

JUMBO NO. 2.

This is a drift mine which supplies domestic trade, and is located two miles south of Cambridge, and is owned and operated by J. A. Smith. It was inspected December 12th, March 16th, June 4th, August 4th and October 11th, and was each time found in good order. A furnace and stack has been added to this mine, and while it only employs from four to six miners, it has capacity for furnishing air for fifty men if necessary. A pair of scales have also been erected. I tested them October 11th, and they being second handed and out of use for a long time, I found them ten pounds to the hundred in favor of the operator. The coal was weighed in road wagons and an examination proved that some of the loading had gotten removed from the pea; this was replaced and the scales weighed correctly.

TRAIL RUN

Is situated two miles east of Byesville, and is owned and operated by the Cambridge and Elyria Coal Co. Henry Moss is superintendent and William Rigby mine boss. It was visited December 29th and June 22d and 23d. On my first visit I found that preparations were being made to place a cable plant in the mine. A slope was being driven to the surface for the purpose of a traveling way and a general cleaning of entries going on. On the second visit the slope was completed and the rope haulage in operation. Some trouble was experienced over the former, the couplings and draw bars being too light to carry long trains and they occasionally broke in two. A substantial drag was attached to every train to avert an accident on the grades and heavy draw bars and couplings were being provided as fast as circumstances would permit. A drill hole had been located in a dip in the extreme workings and the water was being pumped through it, reducing greatly the expense of hauling the water. A survey to locate this hole was made by Mr. Osie Hoge, of Cambridge, and the results obtained were remarkably accurate. After running long lines and contending with many angles, he missed the mark but three inches with a six-inch hole. An old entry was being cleaned up as a tramway for the

miners but was not available at this time. A guard was kept at each end of the haulway with orders to prevent any person from traveling through while the rope was in operation. On July 1st this mine ceased operation by reason of difference between miners and operators, caused by a proposal of monthly pays for a time which did not meet with the approval of the miners. The mine is still idle. It has fan ventilation, producing 50,800 cubic feet of air per minute at the intake and was well distributed throughout the mine. One hundred and twenty miners and twenty-one day men were employed on my last visit.

SCOTT'S.

This mine is situated on the B. & O. Ry. four miles east of Cambridge, and is operated by the Scott Coal & Salt Co., with William Scott superintendent and John F. Wilson mine boss. It was visited December 30th, March 14th, June 16th and August 20th. On the first named date I found that the fan referred to in the previous annual report had not yet been provided, and there was no surplus air in the parts of the mine then working. Mr. Wilson and I mutually agreed that the fan would be essential in piercing the fault. On my return I found the fan still unprovided, while on the third inspection it was in full operation and the fault entry was being pushed as fast as possible. It was ventilated by a box one foot square which followed the entry. Thirty-four miners and seven day hands were employed.

C. C. C.

This mine is located three miles east of Cambridge. It is a drift mine operated for domestic purposes by Moses Sarchett, who is also manager. It was visited January 3d and June 21st. On the first named date air was insufficient for the recent increase in the force of men employed. I requested a furnace erected in the old air shaft and two break-throughs made. On the last visit I found the previous orders complied with, and with the exception of some loose stone which I order d taken down, the mine was in good condition. Six miners and two day hands are employed.

GUERNSEY.

This is a drift mine located on the B. & O. Ry. two miles east of Cambridge, and is owned and operated by the Guernsey Coal Co. Mr. M. D. Robins is superintendent and Hugh Collins mine boss. The coal in the first hill has been exhausted and it is now being removed from the second range of hills. It was visited January 3d, March 14th, June 16th and August 20th. On the first visit I ordered a door arranged to ventilate No. 5 west entry and break-throughs made in the Owen and Wilson rooms, and requested that attention be given to the firing of the furnace. On the second visit I found a poor fire and the air measurement deficient. I then ordered a fireman placed at the furnace. They were just resuming work on June 16th, after a strike of six weeks over some discharged men. Some repairs had become necessary on account of the period of idleness, but were being supplied as fast as circumstances would permit. On the last visit I found the drivers careless in closing the doors while gathering their trips, and I called their attention to the penalty for such an offense, and told them that I would enforce the law to its full extent if there was any further carelessness concerning the doors. Fifty-five men and nine day men were employed.

WILSON.

This mine is situated three miles east of Cambridge, and is owned by Mr. Jas. Wilson and was formerly managed by Robert Burris. It was inspected June 21st and August 2d. On the first named date I found it idle and the entrance caved in, while on the last visit I found it abandoned.

MILLINER.

This is a retail drift mine situated three miles east of Cambridge. I visited it June 21st and found the air shaft had been cleaned out and an iron basket provided. I ordered a door erected on the main entrance in order to distribute the air. Three men were employed.

M'CREARY

Is a drift mine located near Salesville. R. L. Spenser is owner, operator and manager. It was visited August 1st when it was found in good condition. This mine has natural ventilation and furnishes employment for six miners.

M'CORMICK

Is located near Salesville, and is operated by Robert McCormick. D. C. McCormick is manager. It was visited August 1st and found in fair condition for the small force of men employed. Natural ventilation is used.

ROSE.

This mine is located near Salesville, and is owned and managed by W. E. Rose. I inspected it on August 1st and ordered the intake for air cleaned out as it was badly obstructed by a recent fall. One miner finds employment here. The mine has natural ventilation.

DEEP CUT.

This is a new drift mine opened near the deep cut on the National road three miles east of Cambridge, and is owned by Wilson and Burris. J. F. Wilson is superintendent and J. E. Burris mine boss. It was inspected August 2d and found in good condition. The air shaft has been sunk and it will be worked on the double entry system. Six miners are employed.

BRIAR HILL NO. 1

Is situated near Cambridge, and is owned and operated by David Nicholson, with Dennis McKinley mine boss. It was inspected August 4th and found in good order for the force of men employed. It is a drift mine, has natural ventilation and employs from three to eight miners in the different seasons of the year.

ROBINS.

This is a new shaft mine opened this year. It is located on the B. & O. Ry. one and one half miles west of Campbell's Station. It was sunk 10x20 and is ninety-six feet deep. The mine is owned and will be operated by the Robins Coal Co., with

Alex. Robins superintendent and David Collins mine boss. This mine being the furthest northeast of any mine in the county, has developed the fact that the Cambridge coal fields are far more extensive than heretofore anticipated. The coal is six feet in thickness, and with an overhanging strata, conforms to every known qualification of a good coal field. The best machinery is provided, and when in full operation it will compare favorably with the best mines in the state. Much credit is due this company for the present as well as the past developments made in the No. 7 coal seam, and the public has undoubtedly been benefited by their untiring enterprise.

COSHOCTON COUNTY.

MORGAN RUN NO. 1.

This mine is situated on the C., C. & S. Ry. and is owned and operated by the Morgan Run Coal Company. D. P. Jones is superintendent and James McCormick mine boss. It was visited May 26th and September 26th. On the former visit pillars were being drawn near the entrance and on the latter date I found the mine finished and abandoned.

MORGAN RUN NO. 2.

This mine is situated on the C., C. & S. Ry. and employs from sixty to one hundred miners. It is owned and operated and managed same as the No. 1 mine. This mine was visited May 26th and September 26th. On the first visit I found that an available escapement way had been provided at the back of the hill. Seven electric lights had been placed in the main entry and the stoppings repaired and the mine was in good condition. The pillars were being drawn on Nos. 3, 4, 5, 6, 7 and 8 entries. This roof is well adapted for pillar work and the coal is being economically removed. This is the only electric motor in the district and is being successfully operated. Furnace ventilation is used.

MORGAN RUN NO. 3.

This mine is located opposite No. 2, piercing a new coal field. It is owned and managed by the same parties as the No. 2. Was visited September 26th. I found a creditable and substantial opening and all indications were that this would be an excellent mine when placed in operation.

HUDSON.

This is a new mine opened this year and is located on the extension of the Cashingam Switch of the C., C. & S. Ry. An air shaft is provided and the mine is in good condition. An inspection was made September 30th. This mine is a drift opening, has natural ventilation and employs three miners. Mr. Christopher Hudson is the owner and manager. He is an old practical miner and undoubtedly puts forth every effort to make this a model mine and comply strictly with the mining statutes.

KIRKER.

This is a drift mine located near Tyrone. It is owned, operated and managed by Samuel Kirker. It was inspected July 26th and found in fair condition. It is a drift opening, has natural ventilation and furnishes employment to three miners.

BELL.

This mine is located six miles south of Warsaw. It is a drift opening and is managed by J. N. Bell. A connection has been made with the old mine which answers as an escapement way. This mine has natural ventilation and was in fair order for the force of men employed. Was inspected July 26th. This mine is a drift opening and furnishes employment for three men.

CASSINGHAM

Is located on the C., C. & S. Ry. and is owned and operated by J. W. Cassingham with Chas. Cassingham superintendent and James Fitch mine boss. It was visited July 7th and September 27th and 30th. On my first visit preparations were being made to place a cable plant in the mine. A steam pipe had been placed in the intake to convey steam to the pumps. Its radiating effect was noticeable on the air volume. I advised a shaft sunk near the power house and the steam admitted without counteracting the air current and ordered the obstructions removed from the air courses. On my second visit I found the rope haulage in operation and doing fairly well. But all the important factors of the ventilation had been seemingly forgotten and all the attention given to the hauling plant, and as a result there was no current of air moving in the new workings. I gave orders for repairs and returned on the 30th to find the air still insufficient for the force of men employed. I stopped one entry where fourteen men were working, and opened the door that directed the air through that section of the mine, giving the current a shorter route to the furnace and evading the most obstructed air ways. This resulted in bringing the lawful air measurements in the remainder of the workings. I then ordered the air ways cleared of obstructions in the new mine and a regulator provided in the old one in order to reduce the air volume there and to increase it in the former, before they would work in the condemned section. One furnace ventilates both mines but the shorter route is through the old mine, consequently the new mine was robbed.

DAVIS

Is a drift mine located near Coshocton and does a retail business. It is owned and operated by John L. Davis. It was visited July 5th and September 28th. On the first named date I ordered three breakthroughs made, a door erected and the furnace regularly fired. A new drain and haulway were being driven which would add much to the convenience of the mine. On my last visit previous orders had been complied with; the haulway was completed and the mine was in fair condition. I requested the escapement way retimbered. Eight miners were employed.

CONLEY NO 1

Is located near Coshocton and is owned and operated by John Conley with Thos. Hall mine boss. It was inspected July 6th and September 28th. On the first date

I found that an effort was being made to secure an escapement way as previously ordered. The air was foul for want of proper fire in the furnace and I ordered a shaft started as soon as suitable arrangements could be made. On my last visit I found the shaft near completion and requested it double shifted and finished as soon as possible. Nine men were employed.

CONLEY NO. 2.

This mine is situated near and is owned and under the same management as the No. 1. It was visited July 25th and September 29th. On the first named date it was found idle while on the last it had just resumed work. An extensive fall had come in the furnace entry during the suspension. I advised a room driven from the No. 2 to intersect a room on the furnace entry, thus shortening the air travel and evading the obstruction in the old air course. Sixteen men are employed.

ORANGE NO. 1.

This mine is located near Coshocton and was formerly recorded as owned by Hudson & Gorman. It is now owned by the Orange Coal Co. and managed by Chas. West. It was visited July 5th when an escapement way and water course were near completion. These have since been finished. The road has been corduroyed and the mine is in good order for a retail mine. Furnace ventilation is used. This mine employs six men.

ORANGE NO. 2

Is situated near Coshocton and was formerly known as the Lear mine, but is now owned, operated and managed the same as Orange No. 1, to which a west entry is being driven to intersect, after which both will be ventilated by the same furnace. This mine has natural ventilation and is in fair condition for the small force of men employed.

HAY NO. 2

Is located near Coshocton and is operated by the Coshocton Coal Co. Jas. Warwick is superintendent and Thos. Williams mine boss. It was visited January 5th, May 27th, July 8th and September 28th. On the first visit I found the mine generating considerable sulphureted hydrogen gas producing an unpleasant odor. I ordered the stoppings repaired and the furnace fired regularly in order that the gas could be swept from the mine, and diluted below an injurious degree. On the next visit I stopped the pillar workings until the air was brought to the front and the black damp removed. On the next inspection all previous orders had been complied with but the furnace was poorly fired. I requested strict attention given to this important factor. On the next visit I found the mine in good order.

FRANKLIN (West Side).

This mine is located near Franklin Station and is operated by the Columbus Coal & Mining Co., with F. N. Barnes superintendent and Frank Uffner mine boss. It was visited February 17th, May 25th and September 29th. On the first visit I found a recent fall had obstructed the inlet and escapement way. I ordered it cleared and retimbered as soon as the weather would permit. On the second visit I

found the previous orders complied with and the mine in fair condition. I tested the scales and found them inaccurate, they being out of level. I requested them repaired or a new set provided. On the last visit I found the mine in good order and the scales satisfactorily adjusted. Twenty two miners were employed.

FRANKLIN (East Side).

This mine is situated near the west side and the coal is dumped over the same tippie. It is operated and managed by the same parties. It was visited February 17th May 25th, July 7th and Sept. 29th. On the first visit I found the air-ways cleaned as ordered, the air course shortened by a connection from the main to the return entry and the mine in fair condition. On the second visit I found the return air-way obstructed by water that had recently collected in the dip. A new air course was being driven to overcome this menace. The third visit was made for the purpose of examining the scales, and in company with Jas. Pritchard, vice-president of the miners' union. I had previously ordered them adjusted but Mr. Barnes informed us that the delay was caused by his inability to secure an expert, but assured us that they would be adjusted at once. My last visit found both mine and scales in good condition. This mine is a drift opening and is ventilated by a furnace. Thirty-eight miners are employed.

CONESVILLE NO 1.

This mine is located on the P., C., C. & St. L. railway and is owned and operated by David Davis who is also superintendent and Richard Holdsworth mine boss. It was visited February 18th and it was found suspended as it had been for some time.

CONESVILLE NO. 2

Is located near and is owned, operated and managed same as the No. 1 mine. It was visited February 18th and July 25th. On my former inspection a fall had obstructed the return air course and a cross cut was being driven around it. I advised it double shifted and hurried to completion; I also insisted upon clean air ways and tight stoppings. The time allowed by law for the provision of an escapement way having almost expired, I insisted upon its immediate provision. On my next visit I found the previous orders complied with and the mine in good condition. This mine has a novel rope haulage operated by a steam thresher engine, and it is remarkable the rapidity with which this simple contrivance conveys the train from quite a distance in the mine to the tippie which is several hundred yards from the pit mouth. It was designed by the owner.

HAY NO. 1.

This is a domestic mine located near Coshocton. W. G. Hay is superintendent and James Smalley mine boss. It was visited July 6th and September 27th. On the first named date I ordered some substantial stoppings made to replace the canvas ones then in use. I also removed James Smalley, a minor child, from the mine. On the next visit previous orders had been complied with. A connection had been made to the old hard scrabble air shaft and the mine was in excellent condition for the force of men employed. Furnace ventilation is used. Eight miners are employed.

HOLMES COUNTY.

CHIVALLARD.

This mine is located near Millersburgh and is owned, operated and managed by Craft and Chivallard. It was visited July 27th, when I found that the escape-way had been secured by a connection recently made to an adjoining mine. The mine was in good order for the small force of men employed. It is a drift opening and has natural ventilation.

LOOKOUT

Is located two and one-half miles north-east of Millersburgh. L. H. and John E. Mast are managers. It was inspected July 27th when previous orders concerning checks had been complied with and the mine was in good order. This is a drift mine, has natural ventilation and employs five miners.

NEISER

Is located three miles northeast of Millersburgh and is owned, operated and managed by Robert Neiser. It was visited July 27th when I found that a new air shaft had been sunk, a good stack provided and the mine was in good condition.

KILLGORE

Is located near Neiser. It was visited July 27th and found to be exhausted and abandoned.

MAST.

This mine is situated three miles northeast of Millersburgh and is owned and operated by L. H. Mast. On my visit of July 27th, I requested the air shaft enlarged and a larger furnace erected. This mine has been in operation for a great many years and has quite an extensive excavation. An eighteen-inch tiling answers for the air shaft. The furnace is similar to a bake oven and with a capacity insufficient to ventilate the mine under the present conditions. It has a drift opening and employs five miners.

WINEGARD

Is situated four miles east of Millersburgh. Geo. H. Snyder is sole manager. It was inspected July 28th, and found in good condition for the force of men employed. It is a drift opening, has natural ventilation and furnishes employment for six miners.

BLOCK HILL.

This mine is located three miles east of Killbuck, and is operated and managed by Wheaton & Korns. It was inspected July 28th, when I found the air shaft, previously ordered, provided and the mine in good order. This is a drift opening, has natural ventilation and employs two miners.

MEYER

Is located three miles west of Millersburgh, and is owned and operated by the Bowen Bros., with E. Bowen manager. It was visited July 27th and found idle. Previous orders had been complied with. This mine is a drift opening, has furnace ventilation and when in operation employs two miners.

TISHBURN.

This is a drift mine located three miles south of Millersburgh, and is owned and managed by S. Tishburn. It was inspected July 27th when I found the air course provided as previously ordered and the mine in good condition. It has natural ventilation and employs two miners.

HARPSTER.

This mine is located near Millersburgh, and is operated by Skelley and Jordan. It was inspected July 27th and found in fair condition. I advised some cribs built in a wide haulway, which they were about to commence using. This mine is a drift opening, has natural ventilation and employs three men.

BLOCK HILL NO. 2

Is situated two miles south of Killbuck, and is operated and managed by Quiller & Ling. On my inspection of July 28th, I ordered one break-through and one brattice provided. With these improvements added, the mine will be in fair order. It is a drift opening, has natural ventilation and employs three miners.

HORN

Is located four miles west of Millersburgh, and is owned and managed by John Horn. It was visited July 27th and found in good condition. This is a drift opening, has natural ventilation and employs four miners.

MONROE COUNTY.

COATES

Is located near Woodsfield, and is owned and operated by Geo. Coates. It was visited August 8th, when I found it caved in at the mouth with no prospects of re-opening.

GIBBINS

Is located near Mozart P. O., and is owned by B. F. Gibbins. J. W. Hopkins is mine boss. The seam is five feet thick with three feet of clay to goaf, leaving about two feet of coal. Two miners are employed. It was inspected August 8th, when the conditions were fair.

MORRIS

Is located near Woodsfield, and is owned and operated by William Morris, with Valentine Gates mine boss. It was inspected August 8th, when I ordered the second opening made and the use of carbon oil discontinued. Two miners are employed.

CARROLLTON

Is located near Jerusalem, and is owned and operated by S. R. Carrollton. It was visited August 8th. I ordered a connection made from the north to the south opening and the former retimbered. Two miners are employed.

BRUCE

Is situated near Mechanicsburgh, and is owned and operated by J. W. Bruce. It was visited August 9th. This is a shaft mine with the building directly over the shaft top. I ordered an escapement way provided and the practice of burning carbon oil in the mine abandoned. It has furnace ventilation and employs eight men.

HOWELL

Is situated near Mechanicburgh, and is operated by the Howell Bros. Samuel Howell is superintendent and Thos. Howell mine boss. It was visited August 9th. I ordered an escapement way provided and the use of carbon oil prohibited in the mine. It has furnace ventilation and employs six men.

REPORT OF THOMAS H. LOVE,

Inspector of the Fifth District, from November 15, 1892, to November 15, 1893.

Hon. R. M. HASELTINE, Chief Inspector of Mines:

DEAR SIR: I herewith respectfully submit to you a report of the fifth mining district for the year ending November 15th, 1893.

The former portion of the year was full of promise to those interested in the mining industry of my district and I had no trouble in obtaining any improvements which I deemed necessary. In the month of May, however, many of the mines began to suspend operations or reduce their working forces and these conditions continued until the close of the year. During this period I showed as much leniency as possible in asking for improvements, feeling that a rigid enforcement of the law would, under the deplorable conditions of the coal trade, seriously compromise the operators and perhaps bring about an indefinite suspension. The large mines of Jefferson county did not seem to be affected by the prevailing stagnation of trade, especially those of the W. & L. E. Railway Coal Company, which worked steadily until the year closed, and furnished employment to over half the miners of that county.

I have experienced considerable trouble in keeping check doors on the entries. When made of brattice cloth they are destroyed in many places soon after the erection by some malicious person, apparently unknown to those in charge of the mine. In some of the small seams the passing cars frequently destroy them. In these cases I have advised wooden doors, and believe that in all mines where check doors are necessary, they should be made of wood.

At the Bergholtz mine in Jefferson county, on February 15th, James Barcust was shot and killed by the mine boss, Simeon Sheckler, at No. 32 room on the main entry. They were engaged in a quarrel growing out of differences concerning the work. In May, Sheckler was tried in the Jefferson county courts, convicted of manslaughter and sentenced to ten years in the Ohio penitentiary.

Much has been added to the Inspector's duties by having to test the oils used for illuminating purposes in the mines. I find that few companies operating mines in this district keep and furnish the oil used by their miners. After inspecting the mine it is therefore necessary to examine the town carefully and find the store where the oils are kept. At the close of the year I find, however, that the oils have been greatly improved, making a marked difference in the sanitary condition of the mines.

I have, in some cases, been compelled to restrict the use of powder during the working hours. This is a menace to health which is becoming more apparent every year, and which should be abolished where it is possible to do so.

Eight mines in the district generate carbureted hydrogen gas and have fire viewers who are skillful in the duties assigned them, and I am glad to say that no accidents have occurred which could be assigned to this source.

Below will be found a list of the different mines of my district, their location and condition.

Respectfully submitted,

THOS. H. LOVE,
Inspector Fifth District.

LEESVILLE, O., *November 15, 1893.*

COLUMBIANA COUNTY.

SLOPE.

This mine is the property of the O. & P. Coal Company, and is located at Salineville. James Black is superintendent and John Whelan mine boss. I made inspections January 26th, April 25th, June 29th and October 3d, and on each visit I failed to find the mine in the best of order, owing to a scarcity of ventilation and neglect in the general security. With a view of relieving this, a pair of east entries are being driven as fast as possible to a point at which they are preparing to sink a slope, which will answer as an escapement way for the men and an intake for the air. On my last visit the slope had been commenced and no doubt will be completed in one month from the close of the inspection year. During the year the mine has furnished employment for about one hundred men. During the period that the coal trade was dull the men would work alternate days, making the number in the mine at one time about fifty. This mine has the most regular seam of coal of any in the district, averaging five feet in thickness. As they have a large territory I hope in the near future to be able to report the mine in good condition in all respects.

OLD SHAFT

Is also owned by the O. & P. Coal Company. It is a shaft opening forty feet in depth, and generates fire damp in such quantities as to render it dangerous if not given close attention. During the month of February the fan was moved to the pumping shaft which greatly improved the ventilation. I inspected it on December 15th, February 23d, April 28th, June 29th and October 4th. On my former visits forty-five men were employed, while on the last visit I found but eighteen at work. The mine has run very irregularly and during suspension the greater portion was allowed to fill with water. It is operated by J. H. Strabley, under lease.

NEW SHAFT

Is located at Salineville, and is owned by the Big Vein Coal Company of Cleveland. Samuel Madison is superintendent and John Gallagher mine boss. I have inspected this mine five times during the year, viz.: December 14th, February 24th, April 27th, June 28th and October 6th, and on each inspection I found the ventilation so arranged that I considered it a credit to those in charge. A new engine has been erected at the fan which makes an improvement in the air current. In some sections of the mine large quantities of fire-damp are given off. The air is conducted to the faces by brattice cloths, and it is not unusual to find 16,000 cubic feet of air kept at the face of a butt entry. I am glad to say that no accident has occurred in this mine since Mr. Gallagher has been in charge as mine viewer. Not only do dangers arise from the deadly gas but a very dangerous roof has to be contended with, being so affected by the pressure of gas that it comes down from two to five feet in thickness. The seam is that of the Big Vein, and when natural is six feet in height. The coal is hauled by tail rope. One hundred and thirty-five miners and twenty-nine day hands are employed.

FARMERS'

Is located at Salineville, and is the property of the Brown Coal Company, with John Brown as manager. It was inspected February 24th, March 11th and July 28th. On my visit to that part of the district July 1st and October 6th, the mine was idle. It has worked very irregularly all the year. On my inspection of February 24th, I found considerable black damp present, owing to the connection with the Slope mine being open. I ordered that part closed and checks placed on the entry to turn the air to the men in the rooms. I also ordered that the furnace be fired during working hours, finding that this important matter had been neglected. When inspected July 28th I found the mine greatly improved, with but fourteen miners and four day hands employed. The opening is a drift made into the big vein, and has been a very productive mine. It will soon be abandoned, however, the entire work being confined to the two entries and the drawing of pillars.

EMPIRE

Is located three-fourths of a mile from Salineville, on the main line of the C. & P. Ry. S. S. Carnahan is owner and manager. The mine has two separate sections which are only connected by caved-in rooms. The new opening which was made during last year is where the principal part of the mining is done at this time. When inspected December 15th, I took sixteen of the miners out and told Mr. Carnahan to ventilate the mine before they be permitted to return to work. On June 30th I found it very little better, although a new furnace had been built ready for

use. I then suggested that a stack be built on the air shaft and the furnace fired which was immediately done and the ventilation greatly improved. I next visited the mine September 28th to investigate the cause of a fatal accident, in which Thos. M. Wirebaugh was instantly killed by a fall of coal. The opening is a drift made into the big vein, but in the new section of the mine the coal is only about forty-two inches in thickness.

ANDERSON

Is located at Salineville, and is owned by the Brown Coal Company. It is a drift opening to the strip vein, and has furnace ventilation. Matthew Smith has control. The mine resumed operation March 1st, after being suspended one year. I made an inspection April 26th and found the mine in good order, with twenty-three miners and two day hands employed. Operations were again suspended July 1st, and so remained when visited October 5th.

FOSTER

Is located on a branch of the C. & P. Ry., near Salineville, and is owned by Morrison Foster of Sewickley, Pa. David Simpson has control. I visited the mine four times during the year, December 16th, January 25th, April 26th and October 4th. In the month of December the mine took a sudden squeeze in the abandoned workings. Thin pillars and a strong top brought it over the entire mine. Ten miners were at work December 16th cutting through to Nos. 12 and 13 entries, where I found twenty miners working. January 25th, the air course was yet obstructed and the ventilation poor. April 26th I found the ventilation much improved and thirty miners at work. On my last visit thirty-seven miners were employed, and with the exception of some water on the haulway from the cracks in the roof, the mine was found in fair order.

PINE GROVE

Is the property of A. H. Davis, and is located two miles east of Salineville, on the C. & P. Ry. H. P. Sutherin is superintendent and Geo. Renshaw mine boss. Work was resumed at this mine on February 1st, after a suspension of nearly two years. I inspected the mine April 28th, finding but eight men employed. I was called June 3d to investigate a fatal accident to Leonard Saltsman. A loaded bank car had jumped the track at the mouth of the drift and displacing a timber, had precipitated a large mass of earth and timber, which fell upon the victim crushing him to death. I inspected the mine again October 3d and found a new air shaft on the south side of the mine, but having no furnace the ventilation was insufficient. I requested a furnace built at once. At the close of the inspection year twenty-four miners and four day hands were employed. The mine was suspended a short time during the erection of a new tibble.

HAYS'

Is located at Salineville, and is owned and controlled by J. H. Strabley. The opening is a drift to the big vein and the work is confined principally to drawing pillars. I inspected the mine June 30th and October 5th, and each time found twenty-five miners employed. The ventilation is natural but fairly good from the fact that connections have been made with the Farmers' and Kirk mines and that there are other openings to the surface. If worked steadily it will soon be abandoned.

SALTWELL

Is owned by John Kirk, of Salineville, at which place the coal is used for domestic purposes. The mine has been connected with the Hays mine for ventilation and was found in good order on June 30th. Daniel Talson is manager. Three miners are employed.

BUCKEYE

Is owned by the Buckeye Fire Clay Company, of Wellsville, where the mine is located. When visited July 20th, it was found idle. When working three miners are employed, and the coal is used for brick-burning purposes.

FIRE CLAY MINES.—FURNACE

Is owned by the Furnace Fire Clay Company, and is located at Salineville. The mine has worked but little during the year, as the brick works at which the clay was consumed had burned down during the spring. When in operation four miners are employed.

WALKER

Is owned by the Walker Fire Clay Company, and is located between Wellsville and East Liverpool. Thos. O'Brien is in charge. The openings are drifts and natural ventilation is used. On my visit July 21st, I found the main entry crumbling from the effects of the air and ordered that it either be timbered or that a track walker be put there to take down loose slate. Eight miners are employed.

LYTHE NO. 1

Is owned by John Lythe & Son, of Wellsville, at which town the mine is located. The opening is a drift to the upper clay seam. I visited it four times during the year—January 24th, April 19th and 29th, and July 21st. On April 17th Archibald Putnam was killed by a large fall of sand rock on the entry. The slate had all been taken down to the sand rock which is considered a safe roof. Two men were engaged in clearing up a slide of clay which had come down from the side when a mass of rock fell suddenly burying Mr. Putnam beneath it. I made a careful examination of the place on the 19th, and found many more loose slabs which I ordered taken down before work was resumed.

LYTHE NO. 2

Is located near and is operated and under the same management as the No. 1. The opening is a shaft to the lower clay which seems to be of a superior quality at this point, and is being used in the manufactory of sewer-pipe and fire brick. Inspections were made January 24th and July 21st. A small fan is used as a means of ventilation and six miners are employed. When last visited I found the mine temporarily suspended. A. W. Smith is mine boss.

BUCKEYE

Is the property of the Buckeye Fire Clay Company, at Wellsville. I. R. Clark is superintendent and John Davis mine boss. It was inspected January 24th and July

20th. A connection has been made with the Vulcan mine making an escapement way for both. On the last visit I ordered a ventilating basket placed in the shaft. Six to eight miners are employed.

VULCAN

Is owned by the Vulcan Fire Clay Company and is located near the Buckeye. John McNutt is in charge. It was inspected January 24th and July 20th. In January I ordered some bratticing done to carry the air to the rooms and in July I found the mine working but very little, owing to an over-production of fire brick. Five miners are usually employed.

K. T. & A.

Is located at the east end of East Liverpool, and is owned by Knowles, Taylor and Anderson, with Thos. Anderson in charge. It was visited July 21st and October 2d. The opening is a slope and the clay is of great thickness. The air shaft had been enlarged but having no artificial pressure I suggested a fan which the company agreed to erect at once. Nine miners are employed and the product is used in the manufactory of sewer-pipe.

HARRISON COUNTY.

MESSENGER

Is owned by the Messenger Coal Company, and is located at Bowerston on the P., C., C. & St. L. Ry., with J. H. Simons as manager. The opening is a drift with furnace ventilation. It was inspected June 23d, August 15th and October 23d. During the early part of the year the mine did not work steadily, employing then from four to twelve men about half time. When last inspected, I found thirty-two miners and five day hands employed. According to orders given in September, a new furnace had been built and the mine was in good order.

CAMPBELL

Is located near Cadiz, and is owned by J. H. Campbell who is also manager. The opening is a shaft 20 feet deep, and as the coal is used for domestic purposes, only four miners and two day hands are employed.

KIRK

Is owned by Kirk Bros., and is located at Cadiz. It is a domestic mine with a drift opening to the No. 8 coal and employs four miners during the fall and winter. It has natural ventilation and is in fair order.

WEYANDT

Is owned by A. Weyandt, and is located near Bowerston. This is a domestic mine and employs from two to six miners. When visited August 15th, a second opening was being sunk and the necessary preparations were being made for the fall trade.

CLEMONS

Is owned by S. C. Clemons, of Cadiz, and is located one mile from the town. It employs three miners and when visited November 14th, was found to have no return air course. I ordered the miners back until a return was commenced, and an air shaft sunk. The seam is No. 8 and is four feet in thickness.

HEDGE

Is owned by William Hedge, and is located one mile from Cadiz. Four miners are employed. The mine is poorly ventilated but Mr. Hedge is trying diligently to improve it. The opening is a drift to the No. 8 coal and the ventilation is natural.

JAMISON

Is the property of J. C. Jamison, and is located at Cadiz. Four miners are employed. The mine is new and has as yet no means of ventilation. Orders were given to that end.

OAK HILL

Is owned by the Oak Hill Coal Co., and is located near Station 15 on the P., C., C. & St. L. Ry. J. N. Young is manager. The mine usually employs from ten to twenty miners, but in the month of June the portion of the mine at the air shaft caved in and a more suitable place was selected on the Wilson farm, but a controversy ensued between the landowner and Mr. Young concerning the right to sink the shaft and that point was abandoned. The entry leading to the old shaft was finally cleaned up, a new furnace built and work was resumed again, but a poor market has caused considerable irregularity in the progress of the mine during the summer and fall.

PADDY HILL

Is owned by John March and is located at Freeport, on the C., L. & W. Ry. It is a drift opening with furnace ventilation and I have always found the sanitary condition of the workings good. Twelve miners and two day hands are employed and the coal is used for domestic purposes at Freeport.

ROWLAND

Is the property of Jacob Rowland, of Freeport, near which the mine is located; four miners are employed. When visited October 19th, I found the mine without means of ventilation and stopped it until the necessary improvements were made.

CARROLL COUNTY.

SHERRODSVILLE NO. 4

Is owned by Somers & Wainwright and is located two miles from Sherrodsville, on a branch of the W. & L. E. Ry. Frank McIntosh is superintendent and Wm. Maloney mine boss. I have visited the mine seven times during the year, viz.: January 13th, March 6th, 14th and 20th, June 2d and September 25th. On the third inspection, I found 14,000 cubic feet of air in circulation throughout the mine with one hundred

and sixty-five miners employed. A habit of firing twice a day had formerly been practiced and it was evident that the volume of air being produced by the furnace was insufficient to dilute the powder smoke in the afternoon. Upon careful examination I found that at least 300 pounds of powder were being exploded in from fifteen to thirty minutes, producing carbonic oxide to such an extent that the miners were compelled to leave their rooms for quite a time after firing. I at once notified the miners that the firing must be deferred until 4:30 (quitting time), until the volume of air was made sufficient to meet the emergency. I also notified the superintendent to increase the ventilating facilities and he began the sinking of a shaft on the north side of the mine. I returned to the mine on March 20th and found that some of the miners were firing as before. I notified them that if the order was not obeyed I would enforce section 6871 of the mining laws, which was afterwards done with four of them before the order was finally obeyed. On my visit of April 7th, I found that the shaft had been completed, which brought the air fresher and purer to the men in that section of the mine, but added very little to the quantity. On my next visit I found the firing at noon again in practice and the mine was filled with powder smoke which remained in some sections until quitting time in the evening. I then notified the management that a much greater volume of air must be provided and a fan would be the only means of relief under the circumstances. This was agreed to but the mine then suspended operations until September 15th. I again made an inspection September 25th, finding two hundred miners employed with no change in the ventilation except what nature had made by a change of atmosphere. I ordered that only one hundred and twenty men work in the mine at any one time, and that no powder be exploded in the mine until the miners were ready to quit work in the evening. The mine has been working very irregularly recently, and when operations are resumed better ventilation must be provided.

SHERRODSVILLE NO. 3

Is owned and controlled by the Fuller Coal Co., and is located one mile from Sherrods-ville, on a branch of the W. & L. E. R'y. The mine was in a splendid condition during the earlier part of the year, having fan ventilation, good pumping facilities and rope haulage. They employ 135 men. On July 1st the mine was suspended and had not worked any when the inspection year closed. D. R. Jones is superintendent and D. M. Jones mine boss.

DAVIS NO. 1.

This mine is located one mile from Sherrods-ville on the main line of the W. & L. E. R'y, and is owned and operated by Somers & Wainwright, with Frank McIntosh superintendent and James Clelland mine boss. Visits were made February 2d, March 17th and May 22d. The mine suspended operations July 1st. On my last visit I found the ventilation had become insufficient to dilute the large amount of powder smoke being generated by shooting at noon. Some were blasting the coal from the solid which requires a large quantity of powder. A new air shaft has been sunk on the east side where a large furnace will be built for the better ventilation of the mine when work is resumed. At the time the mine suspended one hundred and thirty-five miners and forty-two day hands were employed. In speaking of this mine I report with extreme regret the death of Mr. James Clelland, the mine boss, who left his business associates and friends to mourn the loss of an able official and a true friend. When the inspection year ended the mine had not resumed operations.

LINDEN

Is owned by the Linden Coal Co., and is located near Dell Roy. W. L. Davis is superintendent and Geo. Selway mine boss. It is a drift opening with furnace ventilation and the seam is the No. 7. Inspections were made December 8th, March 15th and July 3d. The mine was poorly ventilated previous to my last visit, after which a larger furnace was built and the doors and stoppings repaired. At this time fifty-seven miners and eleven day hands were employed, and a few weeks later the dull coal trade reduced the number of miners to fifteen, at which it remained until the close of the inspection year.

ALLEN SHAFT.

Located at Dell Roy and owned by the Allen Coal Co., of Cleveland. Thomas West is superintendent and John Moore mine boss. The mine is ventilated by a fan and on each inspection was found well ventilated. The large amount of water has been the means of much expense. Two large pumps are kept in constant operation, to exhaust the water, and at times sections of the mine have been flooded. The water is becoming liberated to some extent, however, and the mine has given employment to seventy-five miners and twenty-six day hands during the year. The long wall system of mining has been adopted in some sections of the mine and it is thought will be very successful when all concerned become thoroughly acquainted with the system.

SCOTT'S NO 1

Is located between Carrollton and Dell Roy on the C., C. & S. R'y; was purchased by Long Bros. of Tabor in the month of May, from the Franklin Coal Co., of Cleveland, who had refused to put the mine in a lawful condition when requested to do so. On my visit of March 16th, I brought the miners out and ordered them not to return to work until the mine was made safe by cutting the rooms off. Some of them were driven up 100 yards and showed signs of a squeeze. A fault had cut off the entries and it was expected to cut the rooms off all the time. For this reason, the company did not care to go to any expense. The new company commenced operation June 1st, with John Ebdon as manager. And when visited September 20th the improvements were being made and the rooms were in good coal. The mine has worked about half time during the summer and fall giving employment to twenty-two miners and four day hands.

ELDER

Is a new mine located two miles north of Dell Roy, on the C., C. & S. R'y., and is the property of Jones & Owens, of Canton. The opening is a drift to No. 7 coal, with furnace ventilation. J. D. Owens is superintendent and James Thomas mine boss. From twenty-four to thirty miners are employed. The mine commenced to ship coal in the month of July but has not worked regularly up to the date of the inspection year. The territory here resembles that of the neighboring mines in the No. 7 seam. Faults appear frequently, almost cutting the coal out. The coal is five feet thick, however, at this mine and looked favorable when last inspected, September 21st.

HUSTON

Is the property of Huston & Fawcett of Carrollton, where the mine is located. Frank Moody is lessee and furnishes coal for the town, consequently works most in

fall and winter seasons. During the year great improvements have been made in making a return air-course to the air-shaft, building a furnace, and erecting a stack on the air-shaft, all of which had been previously ordered. The opening is a drift to the No. 7 coal and is also inclined to be faulty. From two to six miners are employed.

EMPIRE NO. 3,

Owned by S. Allen's Sons, and located near Dell Roy; was visited January 31st and found to have been abandoned.

OSBORNE

Is owned by the Osborne Coal Co., of Cleveland, and located on a branch of the C. & P. R. R., near Salineville. The mine has been suspended during the entire year, hence no inspections were made.

PEARCH

Is a domestic mine at Sherrodsville and is owned by Jones & Davis, with John G. Davis as manager. Two or three miners are employed. The opening is a drift with natural ventilation.

BARTHOLOMEW

Is owned by Jos. Bartholomew and located at Sherrodsville, to which the coal is hauled for domestic use. The opening is the old "Bald Eagle" mine which was abandoned some years ago. Jessie Page controls the mine and employs three men. The ventilation is good.

BALL

Is a domestic mine at Leesville, which is owned and managed by Moore & McCreary, and employs from two to six men, according to the local trade. The opening is a drift to No. 7 coal. The ventilation is natural, and the mine is in good order.

PRESTON

Is the property of Jos. Preston, and located at Leesville, where the coal is marketed. A new drift has been recently opened, which makes this a good mine of its kind. Frank Preston is manager, and four men are employed.

CLAY MINES OF CARROLL COUNTY.

MINERVA FIRE CLAY

Is located near Minerva, and owned by the Minerva Fire Clay Company, with N. M. Harsh manager. I inspected the mine April 5th and August 31. The ventilation is natural and conducted by means of a drift on the west side. I ordered a stack erected and fire-basket hung during the hot weather. On my visit August 3d, I found four miners employed; but soon after the mine was suspended, and had not yet resumed at the end of the year.

SANDY VALLEY.

Located at Malvern, and owned by the Canton and Malvern Fire Clay Company, with J. S. Melbourne as manager. The mine resumed operation on March 15th, after being suspended for some time; was inspected July 18th, and found in good order. The air-shaft had been lost by a sudden squeeze on the west side and another was immediately sunk on the east side. The mine suspended again on November 1st.

ROYAL.

This mine is located at Malvern, and resumed operation May 17th, after being idle for two years, being put into the hands of a receiver at that time. It was finally purchased by Myers & Hartford, of New Philadelphia, who are managers of the manufactory of sewer pipe. The mine employs only two miners, owing to the dull trade in this line of material.

MALVERN NO. 1

Is located at Malvern, and owned by the Malvern Fire Clay Company, with C. J. Beckman as manager. The mine has been suspended a few weeks at a time during the year on account of an over production of fire brick, which are made from the products of the mine. Eight to ten miners find employment in the mine, and on each inspection I have found it in good order.

JEFFERSON COUNTY.

Long Run, Dillon and Laurelton mines are owned by the Wheeling, Lake Erie and Pittsburg Coal Company, and are located on the main line of the W. & L. E. Ry., near Mt. Pleasant. The mines are superintended by George Atherton, of Streeter, Ill., who has his office at Dillonvale. These mines worked steadily during the summer and fall months, employing 1,200 miners and 146 day hands. The openings are drifts, and the Brazil fans are used for ventilators. The seam of coal is No. 8, and is five feet in thickness. Overlying the coal is a very dangerous draw-slate, yet I am glad to say that no fatal accidents have occurred at Dillon and Laurelton during the inspection year. Three have occurred at Long Run. On March 7th John Partington was injured by a fall of slate and died the following day. On November 7th Wm. Clause, a sixteen-year-old boy, while working with his father in a room, was instantly killed by a fall of slate. Wm. Nieratko was also killed by a fall of slate December 27, 1892. Out of the above number employed I have ascertained that at least one half were wholly unacquainted with the nature of this roof prior to their coming to these mines for employment, consequently it requires great alertness on the part of the management to protect their employes and save loss of life. The management has manifested a willingness to conform to any order or suggestion which I have given in an official way, realizing that what would be greater protection to the life and health of the miner would also protect all other interests concerned.

LONG RUN NOS. 1 AND 2

Are located three-fourths of a mile from the main line near Mt. Pleasant, with John Woodyott mine boss and Wm. Bainbridge assistant. Visits were made as follows: December 9th and 28th; February 14th and 15th; March 8th; July 5th and 6th; October 13th and 14th, and November 8th. On each inspection I found good ventilation. The repairing of doors and check curtains were found necessary on my February visit, when the matter was referred to the boss, and on my next visit I found that it had been done according to request. I found reason to complain at the manner in which the trappers neglected the main door, and found that some of the drivers were displacing the check curtains, and I threatened arrest if continued. I devoted all the time possible to the rooms, seeing that they were securely propped, and that there was suitable timber with which to prop them. Four hundred and sixty miners and fifty-three day hands are employed.

DILLON NO. 1

Is located at Dillonvale, two and one-half miles east of Long Run. S. T. Croyle is mine boss and Edward Cox assistant. Inspections were made November 25th, December 10th, February 7th and 8th, May 18th, July 25th and 26th, August 9th, and September 27th. I found the ventilation good except on eleventh and twelfth butt entries, where it was a little irregular because of a door between the main and back entries where the intake was separated from the return. This door being near a passway where all the cars were handled for this section of the mine, was frequently opened, cutting off the air from the entries above at intervals. The defect was remedied, however, by making an opening to the furnace from No. 12 entry, taking the air in at this point and making an escapement way and water course for the north section. I found some carelessness practiced in some of the rooms by miners who considered the "draw slate" safe. I informed them that it was never safe until securely propped or taken down, and would in some cases call the boss to my assistance in order to enforce my orders, since they feared a discharge worse than the penalty of the law. I also found that the new check curtains which had been hung in the entries to turn the air into the rooms, had been cut off with a knife by some malicious person. I tried to find out the guilty one but failed. The coal is run over an incline to the chutes. Three hundred miners and thirty-seven day hands are employed.

DILLON NO. 2.

This is a new mine opened in the early part of the year, and is located across the valley from the No. 1 and owned by the same company. The openings consist of two drifts to the No. 8 seam. A fifteen-foot Brazil fan takes the air in at the drifts and discharges it in the up-cast shaft which has an area of 121 square feet. The incline is 1,000 feet long and the chutes are so arranged that flat and box cars can be loaded at the same time. This is the best equipped mine in the district and will, in the near future employ a large number of men. At this time, thirty miners and four day hands are employed.

LAURELTON

Is located three miles south of Dillonvale on the main line of the Wheeling & Lake Erie R'y. Jas. W. Heppel is mine boss, with John Pitson as assistant. Inspections were made on the following dates: November 22d and 23d, February 8th and 9th, May 17th, July 31st, August 8th and October 12th. I had but little fault to find with

the ventilation except when check doors were needed to convey the current into the rooms, and I was informed they were torn down soon after being erected. They promised to replace them however, and try to catch the guilty parties and bring them to justice. I gave positive orders to many concerning the propping in rooms feeling that some of the miners were neglecting this important duty. Three hundred and sixty miners and forty-two day hands are employed.

KELLY

Is the property of the Kelly Coal Company, and is located near Portland Station on the C. & P. R'y. W. E. Smith, of Steubenville, is superintendent and Joseph Robinson mine boss. The opening is a drift to No. 8 seam and has furnace ventilation. Was visited December 23d, March 24th, July 7th and October 26th. An entry has been driven to the surface on the south side making a most suitable intake for the air, also making an available escapement way. During my inspection in July I requested that an addition be put to the stack on top of the furnace shaft, which was done; and on my next inspection I found the mine in good order. The former part of the year fifty-five miners and eleven day hands were employed, while in the latter part but thirty miners and six day hands were employed.

BRILLIANT

Is located at Brilliant, and is owned by the Brilliant Iron Company. Richard Humes is in charge. I visited the mine seven times during the year, viz.: November 18th, December 22d, February 15th, March 3d, April 1st, May 26th and October 27th. The mine is a shaft opening, 262 feet deep with furnace ventilation. In the month of June a second opening was completed consisting of a vertical shaft 270 feet deep. A cage is to be placed in this shaft to lower and hoist the employes. Soon after the completion of the escapement way the large iron mills which consumed the product of the mine suspended, causing a suspension of the mine also. I inspected it October 27th preparatory to its resuming operations. Twenty miners and six day hands have formerly been employed.

HIGH SHAFT

Is located on Market street, in the city of Steubenville, and is owned by the Steubenville Coal & Iron Company. William Smurthwaite is superintendent and Geo. Arthur mine boss and fire viewer. Four visits have been made during the year, December 29th, February 16th, June 8th and August 17th. On each inspection I found the law being lived up to and the mine in good condition. A large twelve foot fan was moved from the top of the shaft to the bottom. This together with a seven foot fan at the top of the shaft makes excellent ventilation. A shaft has been sunk to the No. 5 seam, forty feet below this shaft, in order to prove the quality of the coal which did not prove very satisfactory and will in all probabilities be discontinued. A four-foot fan was erected at the top of this shaft for ventilation during the sinking of it. Considerable fire damp was encountered. The seam of coal in the high shaft is No. 6, which is four feet in thickness and is worked on the "County of Durham" system, which is more satisfactory for ventilation than the double entry plan, especially when gas is given off or powder used to excess. Sixty miners and twenty-seven day hands are employed.

BUSTARD

Is located two miles above Steubenville on the C. & P. R'y, and is owned by the Jefferson Coal Company. William McCook is superintendent and John Kelley mine boss. The mine is a shaft eighty feet deep with furnace ventilation and is also worked on the "County of Durham" system. I made inspections December 30th, June 9th and August 18th. On the last visit I found that a strike had been inaugurated on account of some differences between the company and their employes; only eleven miners were at work, while on the former visit I found forty-five. I have been informed that all were at work at the close of the inspection year. The mine is well ventilated and under good discipline.

CO-OPERATIVE.

This mine is the property of the Co-operative Coal Company, and is located in Springfield township, on a line of the L. E., A. & S. R'y. Harrison Peterson is in charge. I visited the mine March 28th and August 4th, and on each visit found eight miners employed working half time. The mine is a drift opening, has furnace ventilation and is in good condition for the number of men employed.

BERGHOLZ

Is located at Bergholz, and is owned by the Nebo Coal Company, with S. M. Kirk superintendent and George Sheckler mine boss. The opening is a drift to the No. 5 seam of coal, which is of excellent quality. Five visits have been made during the year, February 15th, March 28th, April 27th, May 24th and August 4th. I found the mine fairly ventilated on each inspection with the exception of the times when the fan would be neglected. This I found done previous to my inspection of March 28th. The same boilers are used to generate steam for hauling and fan engines and the fan would be stopped when the power was not sufficient to haul the coal. I advised that the stack on the boiler flue be made higher, which was done, and the power was then sufficient to run both engines. I also found a small amount of fire damp on the main entry and ordered that the mine be viewed with a safety lamp before the miners were allowed to enter. Twenty-five miners and three day hands are employed.

NEW SLOPE

Is located at Bergholz, and is owned by Curry & Hanson. The opening is a slope to the No. 5 coal, has fan ventilation and is worked on the single entry plan. I have made three visits to the mine during the year and have found the sanitary condition excellent in every particular. I have never before seen a mine worked on this system to have such perfect ventilation, and take pleasure in crediting it to Richard Hanson who is mine boss. On my last inspection I found twenty-six miners and four day hands employed.

DIAMOND NO. 2

Is owned by S. M. & W. G. McCullough, and is located two miles east of Hammondsville on the C. & P. R'y. Isaac Thomas is in charge. I inspected the mine March 31st and July 21st, finding a splendid ventilated mine. The furnace previously ordered had been built and is a model structure of its kind. In July I measured 22,000 cubic feet of air and only fourteen miners employed. I found no reason

to complain on account of powder smoke standing in the rooms as has been the case at many mines of a similar capacity. The opening is a drift and the coal is very irregular in its formation varying in thickness from three to five feet.

LAGRANGE

Is the property of Alex. Gilchrist, of Brilliant, at which town the mine is located. The opening is a drift to the No. 8 coal and is 300 feet above the river. The coal is lowered to the schutes over an incline where it is loaded on barges for market. The mine worked very irregularly during the year, hence but three visits have been made. I visited the mine on the last day of the inspection year finding it idle. The territory is nearly exhausted and if worked steadily will last but a few months. Sixteen miners and four day hands are employed.

ROLLING MILL NO. 2

Is the property of Wallace, Canfield & Co., of Irondale, and the coal is used in the large iron and tin mills of that place. William Nightingale is manager. The opening is a drift to what resembles the No. 8 coal, which varies in thickness from four to six feet. I inspected the mine March 31st and July 19th. According to my request an air shaft and furnace had been added to it, which makes it equal in general condition to any in that vicinity. When visited July 19th, I found both the mine and mills suspended. Repairs are being made in the mills and the incline of the mine and both have since resumed operations. Twenty-five miners and seven day hands are employed.

CONNER

Is located at Calumet and is owned by Patrick Conner. The opening is a drift to the Rodger vein and is worked on the single entry plan and has furnace ventilation. On April 13th I found the ventilation insufficient, and ordered the furnace enlarged and a column of thirty-inch sewer pipe added to the ones leading from the furnace until sufficient height be reached. This being down for seventy-five feet, a good current was created and the mine placed in good order. Eleven miners and two day hands are employed, with James Conner foreman.

CALUMET

Is located at Calumet, and is owned by the Calumet Fire Clay Company. Samuel McAdoo is superintendent and John Fisher mine boss. It is located near the Conner and mines the same seam. I found it in very bad condition January 6th, and made a similar order to the one made at the Conner mine. April 13th I found the improvements had been completed and on July 12th I found the condition greatly improved. Twelve miners and two day hands are employed.

GT. WESTERN

Is located at Toronto, and is owned by the Gt. Western Fire Clay Company. Jas. Duke is manager with twelve miners employed. The opening is a drift to the Rodger vein and has furnace ventilation which is good. The furnace was repaired during the year as had previously been requested. The coal is used at the large sewer-pipe works for brick burning purposes.

FOREST CITY

Is owned by the Forest City Fire Clay Company of Toronto, and is located near the Gt. Western. The opening is a drift to the Rodger seam and the mine has furnace ventilation. W. S. Hanna is in charge. On each inspection I have found this mine in excellent order. Six miners are employed and the coal is used in burning kilns of sewer-pipe and fire-brick.

JEFFERSON

Is located at Toronto, and is owned by the Toronto Fire Clay Company, with Thos. Gilligan in charge. This mine is a drift opening to the Rodger vein and the only means of ventilation is the exhaust of a pump at an air shaft on the north side, which is only run a few hours each day and stopped when the water is exhausted. I notified the company that the ventilation would have to be made more regular, and as this shaft is used as an escapement way, I objected to a furnace being placed at it. The company assured me that they would ventilate the mine if a reasonable time was given them. Fourteen miners are employed.

TAYLOR

Is owned by Taylor and Cox, and is located one mile back of Toronto. The opening is a shaft and well arranged for a domestic mine. On January 4th I found fire-damp in the main entry and made necessary arrangements for its removal, and provided for a fire viewer to go in ahead of the miners. On April 14th I found sufficient air to dilute the gas, and a second opening being made, which has since been completed. Five miners and two day hands are employed. Alex. Taylor is manager.

CASIDA.

This is a domestic mine at Bergholz, and is owned by Thos. Casida. In the summer season one miner is employed and in the fall and winter, three. The opening is a drift with natural ventilation and is in fair condition.

MARKLE

Is located at Markle Station, on the C. & P. Ry., and is owned by the Markle Fire Clay Company, with Joshua Gill as foreman. The opening is a drift to the Roger vein. A new air shaft and furnace has made the mine comfortable for the miners, six in number. The coal is used for burning kilns of fire-brick and sewer-pipe.

LUPTON

Is located near Mt. Pleasant, and is owned by S. A. Lupton & Company. The opening is a drift working No. 8 coal, which is hauled to Mt. Pleasant by wagon and used for domestic purposes. Four miners are employed and the mine is in fair condition.

TWEED.

This is a domestic mine located on Coal Hill, three miles southeast of Steubenville, and is owned by J. D. Tweed and Sons. It is opened by drift into the No. 8

seam of coal. April 24th I found five miners employed, and considered the ventilation insufficient and ordered an air shaft and furnace, which was provided as soon as possible. The mine was then in good order.

BATES

Is a domestic mine located one mile from the Tweed mine, and is owned by John Bates. I visited this mine and found the ventilation poor, by reason of the connection to the air shaft being partially closed. On October 25th I found that the connection had been nearly made. Eight miners and one day hand were employed at this time, while in April I found but three men at work.

PMARR.

This mine is located four miles west of Steubenville, and is owned by William Pmarr and Son. It is in good order, as an entry runs through the hill to the west side and ventilates the mine naturally. From two to six miners are employed.

CABLE

Is located at Wintersville, and is owned by Harlen Ong. The opening is a shaft to the No. 8 coal, which is here four feet in thickness. The ventilation is natural, coming from a drift on the east side of the shaft. The coal is hoisted by horse power, and in the fall and winter season ten miners are employed.

WILLSON

Is owned by Henry Willson, and is located on Coal Hill in Salem township. The opening is a drift to the No. 8 coal. I found on my inspection of October 25th that the ventilation was not fit for men to work in under any circumstances, and notified Mr. Willson that I would give him thirty days in which to improve it, and if not improved during that time, I would close his mine. I was assured by him that an air shaft and furnace would be added within the time specified, and I have since been informed that the improvements have been made. Twelve miners and two day hands are employed.

LACEY COAL

Is owned by William Lacey, and located at Irondale. The coal is mined from the "strip vein," and is used in burning brick kilns. Two miners are employed.

BLUE

Is a domestic mine located at Richmond, and is owned by Deets & Black. Four miners are employed with no means of ventilation. I visited the mine October 24th, and ordered that an air shaft be sunk, which will be done as soon as possible.

HOUT

Is owned by Hout Bros., and is located at Richmond. The ventilation is natural. The mine is in good order, with four miners employed.

OHIO VALLEY

Is owned by the Ohio Valley Fire Clay Company, and is located near Calumet. Otis Seeley is in charge. The opening is a drift to the Rodger vein. The ventilation is natural, but is good owing to there being several openings driven to the surface. The system of mining is single entry, but the doors on the rooms are kept in good order and the mine had the appearance of having practical management when inspected April 14th, and July 12th nine miners and two day hands were employed.

RILEY

Is owned by J. C. Riley, and is located at Richmond. The ventilation is natural, an opening being driven to the west side. Four miners are employed and the coal is used in the town of Richmond.

CLAY MINES OF JEFFERSON COUNTY.

LACEY

Is the property of William Lacey, and is located at Irondale. The opening was formerly a shaft, but has recently been changed to a slope, and the hoisting shaft is now being used as the furnace shaft. The clay is used in the manufactory of brick. The mine has been suspended since August. It was inspected July 19th, when two miners were employed and the mine was in good condition.

CALUMET

Is located at Calumet and is owned by the Calumet Fire Clay Company. Samuel McAdoo is superintendent and Geo. McNeal mine boss. I inspected this mine January 6th, April 12th and July 12th. I find it well ventilated, being the only mine ventilated by a fan in the vicinity. The workings have been hindered by a large accumulation of water which would destroy iron or metal pipes in a very short time. Mr. McAdoo laid a discharge pipe of six-inch sewer pipe which seemed to be a complete success, and the large accumulation of water was greatly reduced. On the last inspection ten miners and four day hands were employed.

CONNER

Is the property of Patrick Conner, and is connected with the Calumet mine. The air is forced in at the Calumet and discharged at the opening of the Conner. This mine is also very wet and the resulting expenses so great that the company will open in a different place and abandon this mine. James Conner is manager and six miners and two day hands are employed.

FREEMAN

Is owned by the Freeman Fire Clay Company, at Freeman's Station. The opening is a drift with natural ventilation and on each inspection has been found in good order. John Wasley is mine boss. Five miners and three day hands are employed.

NONESUCH

Is owned by Stratton, Hinkle & Stratton, and is located near Empire on the C. & P. Ry. Chas. Stratton is manager. • The mine was suspended the former part of the year and after resuming operations two inspections were made. April 12th, I ordered the traveling way repaired and safety gates placed on the shaft and on July 13th, I found that my order had been obeyed. From four to eight miners are employed

CONGO

Is located near Empire, and is owned by the Congo Fire Clay Company. Benj. Williams has charge. This mine was suspended all winter and resumed in early spring. Inspections were made April 12th and July 13th. On my July inspection, I ordered the miners out until stoppings were put in. The mine has natural ventilation and employs five miners.

EMPIRE

Is the property of the Empire Fire Clay Company, and is located at Empire. Sam'l McAdoo is superintendent and Thos. Dray mine boss. This is a shaft opening with exhaust steam to create a ventilating current. I visited the mine January 5th, April 11th and July 13th, finding it in good order on each inspection. Five miners and one day hand are employed.

OHIO VALLEY

Is the property of the Ohio Valley Fire Clay Company. W. F. Myers is superintendent and J. O. Evans mine boss. The opening is a shaft fifty feet deep and the only means of ventilation is through the abandoned workings which are so fallen that I could not get through. An entry is being driven to connect with one that is being driven from the surface on the west side and it will be through in a short time. An attempt was made to get an opening out on the south but they encountered so many falls that it was abandoned. Five miners and two day hands are employed.

GREAT WESTERN

Is located at Toronto, and is owned by the Gt. Western Fire Clay Company. The opening is a shaft and is connected with the Forest City mine by which it is ventilated. Ten miners and two day hands are employed, and the product is manufactured into sewer-pipe. Daniel Hinkle has control.

FOREST CITY

Is located near the Gt. Western through which the air is discharged. It is owned by the Forest City Fire Clay Company, of Toronto. The opening is a slope from which the clay is hauled with a chain and drum. January 4th, I requested the repairing of some stoppings, which was done. On July 11th, I found the mine in good order with six miners and two day hands employed. James Millne is manager.

GIANT

Is located at Toronto, and is owned by the Toronto Fire Brick Company. The mine is a shaft opening and was inspected July 11th and October 31st. On my first visit I ordered a return air course made and a ventilating basket placed in the shaft. On my October inspection I found the air course completed, but the ventilating basket had not been provided. Six miners and one day hand are employed. W. J. Corwin is mine boss.

JEFFERSON

Is now owned by the Toronto Fire Clay Company, who purchased it from the Jefferson Fire Clay Company. Previous to changing hands the mine and works were suspended, owing to financial difficulties. The opening is a shaft 108 feet deep and is located in the town of Toronto. Not being satisfied with the ventilation, I ordered that it be increased, to which the company agreed providing a reasonable time was given them. C. Cable is mine boss. Six miners and two day hands are employed.

ISLAND SIDING

Is owned by the Cumberland Fire Clay Company and is located near Brown Station, on the C. & P. Ry. This mine has been suspended during the entire year.

MARKLE

Is owned by the Markle Fire Clay Company, and is located at Markle Station on the C. & P. Ry. A. J. Stewart is manager. This is a new mine with a shaft opening 71 feet deep, employing four miners and two day hands. A large sewer-pipe and brick manufactory is connected with the mine.

WALLACE

Is located at Hammondsville, and is owned by R. G. Wallace & Son. The company made an assignment and have worked but little during the year. The mine is a slope and is in fair condition.

ENTERPRISE

Is the property of the Minor Fire Clay Company, and is located near Empire. S. D. Minor is superintendent and Samuel Murry mine boss. Inspections were made January 5th, April 14th and July 13th. On my last visit I found the second opening nearly closed; this I ordered reopened. Six miners are employed. The clay is used in the manufacture of fire brick.

REPORT OF JOHN P. JONES,

Inspector of the Sixth District, from November 15, 1892, to November 15, 1893.

HON. R. M. HASELTINE, *Chief Inspector of Mines:*

DEAR SIR: I have the honor to submit herewith the report of this district for the year ending November 15, 1893.

The statistical portion shows that three hundred and fifty-five visits were made to the mines under the jurisdiction for the purpose of making examinations as to the conditions surrounding the workings, investigating the causes of accidents or deaths and ascertaining the condition of the scales, ropes and machinery.

In Stark county, during the year, twenty new mines have been developed, one suspended and one abandoned. Ten furnaces and two fans have been erected, twenty-five air shafts sunk, two second openings made, three stairways built, six sets of safety catches were placed on the cages and seven sets of ropes provided.

In Tuscarawas county, fifteen furnaces were erected, seventeen air shafts sunk, four second openings made, three stairways built, ten new openings made. Two mines were suspended and three abandoned.

Wayne county had one air shaft sunk and one new rope provided.

This makes a total of forty-three air shafts, six second openings, twenty-five furnaces and two fans.

It is confidently expected that these additional facilities will contribute to the better ventilation of the mines of these counties. I can assure the department of a marked improvement especially in the domestic mines of the district. I have discovered that in some mines there still linger traces of the injudicious and unbusiness like methods of opening works on the single entry plan. This system of working mines is inconsistent with thorough ventilation by reason of the number of doors required to supply abundant avenues for the escapement of the air current which is very often too weak to perform its intended functions. While I realize that it is not the prerogative of this department to dictate to mine managers or owners what plans shall govern the administration of their affairs, yet I undertake to say that the single entry system should be discouraged wherever it is found.

On one occasion during the year it became the painful but imperative duty of this department, after exhausting all peaceful methods of attaining its perforce to serve an injunction restraining the Brock Hill Coal Company from operating their works until they should be placed in compliance with the requirements of the mining law. There was neither an escapement way nor sufficient air to meet the needs of one-third the number of men employed. In addition, the air that was circulating through the mine was impregnated with poisonous damp, but notwithstanding this the company has no difficulty in securing men who were willing and apparently anxious to make such information as would harmonize with the line of defense. However, the department succeeded in establishing the justification of its claim and the court granted the injunction sought for.

I take this opportunity of thanking all the gentlemen who so ably and courageously assisted the department at that time. To my fellow inspectors I desire to express my sincere appreciation. Thanking you for your generous co-operation at that time and your many acts of kindness and courtesy during the year,

I am, very truly,

JOHN P. JONES,
Inspector Sixth District.

NORTH LAWRENCE, O., *November 15, 1893.*

STARK COUNTY.

HERNBROOK

Is located on a branch of the P., Ft. W. & C. R'y, in Lawrence township, and is owned and operated by Ridgeway, Burton & Co. One hundred and twenty-five

miners and thirty-nine day hands are employed. David Johns is superintendent and William Crookston mine boss. The furnace formerly in use as a means of ventilation, has been displaced by a fan which produces a more regular and satisfactory current of air. This mine is opened in a splendid deposit of Massillon coal, being the largest and most extensive yet developed. The coal is hauled from the mine by a finely equipped engine and endless rope. Five visits were made during the year and each time the mine was found in a reasonably fair condition.

WILLOW SPRING

Is a drift opening made into the No. 6 seam and is located at North Industry, in Pike township, on a branch of the Valley R'y and is owned and operated by the same company as the Hernbrook, with John Looby superintendent and Alexander Lindsay mine boss. Eighty miners and seventeen day hands are employed. This mine is in splendid condition. It has a new air shaft and furnace which produces 12,000 cubic feet of air per minute. The current is divided and carried to all the working faces.

SOUTH MASSILLON.

This mine is located at Navarre and ships its product over the C., C. & S. R'y. It is owned and operated by the same company as the Willow Spring, with David Johns superintendent and Richard Fitzgerald mine boss. Sixty-four miners and fifteen day hands are employed. Three visits were made as follows: January 26th, May 22d and September 6th. The condition of the ventilation was very unsatisfactory to the department. Irregularities in the cutting of break-throughs and the extreme difficulty experienced keeping the brattice in repair, all tended to make the current of air insufficient at the face of the working places. The order to give strict attention to this matter was reiterated, Fan ventilation is used.

NORTH MASSILLON

Is situated on a branch of the C., L. & W. R'y, in Jackson township, and is owned and operated by the same company as the South Massillon. This is a new mine, the entries just being started from the bottom. John Hodgson has entire supervision.

MILLER HILL

Is situated near Massillon, and is owned and operated by the Howells Coal Company. Stanton Howells is superintendent and Matthew English mine boss. They have a new air shaft, safety catches and ropes and exhaust steam is used as a means of ventilation. Sixty-three miners and thirteen day hands are employed. Four visits were made this mine and found in fair condition on each occasion.

ANDERSON

Is a shaft mine situated near East Greenville and ships coal over the W. & L. E. R'y, and is owned and operated by the same company as the Miller Hill, with Anthony Owens superintendent and Chas. Graybill mine boss. Sixty-eight miners and twenty-two day hands are employed. Exhaust steam is used as a means of ventilation which as a rule is fair. Seven inspections were made during the past year.

ROSE HILL NO. 1

Is situated on the C., C., & S. R'y, at Justus in Sugar Creek township, and is owned and operated by the same company as the Anderson mine. It is a drift opening made into the No. 3 seam of coal and is ventilated by means of a furnace. It was visited three times during the year and found in fair condition on each inspection. Evan J. Evans is superintendent and David Thomas mine boss. Eighteen miners and six day hands are employed.

ROSE HILL NO. 2

Resembles the No. 1 mine, and is owned by the same company and furnishes employment for three miners and one day hand.

CAMP CREEK.

This is a shaft mine located on a branch of the C., L. & W. Railway, in Sugar Creek township, and is the property of the O. Young Coal Company. It is one of the best regulated and most finely equipped mines in Ohio. Joseph Collier has entire supervision. Fifty-four miners and nineteen day hands are employed.

ELM RUN

Is a shaft mine situated on a branch of the C., L. & W. Railway, in Sugar Creek township, and is the property of the Elm Run Coal Company. J. A. Wilson is superintendent and William Penman mine boss. Ninety-eight miners and twenty day hands are employed at this plant. The general conditions are not entirely satisfactory, by reason of the single entry system in use, which renders it difficult to conduct the air to the working places. Three visits were made and such improvements ordered as in our judgment would conduce to better ventilation and a more thorough compliance with the law.

MASSILLON CITY.

This mine is located at East Greenville on the W. & L. E. Railway. It is a shaft opening and is owned by the same company as the Elm Run mine and is under the same management. Seventy miners and seventeen day hands are employed. Exhaust steam is used as a means of ventilation. January 18th three rooms were found in advance of the air and were stopped, pending the erection of a door and the making of some break-throughs. Four visits were made this mine during the year, and on each visit the ropes and safety catches were examined.

WADE

Is a drift opening made into the No. 6 seam and is located on the Valley Railway in Canton township. It is owned and operated by the Wade Coal Company, with J. C. Allen superintendent and Jas. Perkins mine boss. Twenty-eight miners and fourteen day hands are employed. Was visited four times and on each occasion the mine was found in good order. It is ventilated by means of a furnace.

RICHARDS.

This is a drift mine made into the No. 6 seam, and is located at North Industry and the coal is used for domestic purposes. Daniel Richards is superintendent and mine boss. Four miners are employed. It is ventilated by natural pressure.

MATHIAS & KENBEL

Is situated at Osnaburgh. It is a drift opening made into the No. 6 seam, and the product is consumed at the factories at Louisville and for domestic purposes. It is ventilated by means of a furnace in a shaft recently sunk. Eight miners and two day hands find employment here.

RICE.

This mine is a drift opening made into the No. 6 seam. It is located at Osnaburgh and is owned by Elijah Rice. The coal is used for domestic purposes. A new air shaft and furnace supply splendid air current. Six miners are employed.

LAKE ERIE NO. 1

Is located in Osnaburgh township, on a branch of the C., C. & S. Railway and is owned by the Monongahela & Lake Erie Coal Company. The conditions prevailing at this mine were undesirable alike to the department and to the management. An air shaft was ordered sunk and the escapement way driven to the surface and the air current was thus divided and a purer atmosphere secured which did much to improve the general condition through the mine.

HALE & BOLINGER

Is situated in Osnaburgh township, and is operated and managed conjointly by Hale and Bolinger. It is a drift open made into the No. 6 seam. The coal is consumed in domestic trade. This mine has furnace ventilation and employs nine miners and two day hands.

SMITH'S

Is located in Osnaburgh township, and is the property of Albert Smith, who has entire supervision. It is ventilated by means of a furnace and the product is used for domestic consumption. Ten miners and three day hands are employed.

SANSSEER

Is a drift opening made into the No. 6 seam, and is situated at Osnaburgh. The mine is ventilated by natural process and the coal is used for domestic purposes. Four miners are employed. J. M. Sansser is superintendent and mine boss.

BRENHEISER

Is located at Osnaburg and is owned and operated by John Marks. It is ventilated by a grate and the coal is consumed for domestic use. Two miners are employed.

BOWEN'S

Is situated at Osnaburgh. It is a drift opening made into the No. 6 seam and the coal is utilized in domestic trade. A new air shaft and furnace supply a splendid current of air for the four miners employed.

HADLEY NO. 4

Is located near Osnaburgh on a branch of the C., C. & S. Railway, and is owned and operated by the Osnaburgh Mining Company. Z. Doll is superintendent and John Zuber mine boss. Thirty miners and eight day hands are employed. When visited August 7th the mine was idle, pending the investigations and developments of the drillings then being prospected in advance of the working places. A new air shaft furnishes a splendid current of air.

MILLPORT NO. 1

Is situated in Jackson township, on a branch of the C., L. & W. Railway. This is a shaft opening made into the No. 1 or Massillon seam. It is interstratified with semi-anthracite or cannel coal. This mine is owned and operated by the Millport Coal Company, with Chas. Brenkamp superintendent and mine boss. Three visits were made during the year. On the first visit the mine had just resumed operations after a disastrous fire, which almost destroyed the property. Seventy miners and twenty day hands find employment here.

PIGEON RUN.

This is a shaft mine located at Pigeon Run, in Tuscarawas township, and owned and operated by the Howells Coal Company, with William James superintendent and Edward English mine boss. Fifty miners and thirty-two day hands are engaged in and around this mine. Four visits were made during the year and on each inspection I found the mine in fair condition.

DAVIS

Is located at Alliance in Lexington township, and is owned, operated and managed by Evan S. Davis. It was visited twice and each time was found in fair condition with thirteen miners and three day hands employed.

BRIDGEPORT

Is a drift opening made into the No. 3 seam and is situated on the Ohio canal in Jackson township. The product of this mine is transported by boats and offered for sale along the route. John Moore has supervision. Three miners and one day hand are employed.

KARPER.

This is a shaft mine, owned and operated by Frank Karper who has entire supervision. Visited twice during the year. The cages have been provided with

safety catches according to instructions. The coal is taken to Alliance and used for domestic purposes. Twelve miners and one day hand are employed.

ROBINSON'S

Is situated near Alliance in Lexington township. Jacob Oyster is the owner and it is operated by John J. Robertson, who is also superintendent and mine boss. Ten miners and three day hands are employed. The conditions were very unsatisfactory when visited, though some improvements have been made, and others are to follow before the mine will be in compliance with the law.

WAYNESBURGH CLAY AND COAL MINE.

This mine is located near Waynesburgh in Sandy township, and is owned and operated by the Waynesburgh Brick & Clay Company. Daniel S. Griffith has supervision. Eight miners and seven day hands are employed in mining clay, coal and shale. The coal is used to fire the kilns and the clay and shale enter into the manufactory of brick. The mine was found in splendid condition when visited.

PAINTER'S

Is a drift opening made into the No. 6 seam of coal. It is the property of William Painter and is located near Magnolia in Sandy township. Three miners are engaged in mining coal for domestic purposes.

WARSTLER

Is situated near Louisville and is owned and operated by Preston & Warstler who have joint supervision. The products of this mine are coal and clay and are consumed in the manufactory of building and drainage tile. Three miners are employed.

PARIS

Is located on the L. E., A. & S. R'y, in Paris township, and is the property of W. A. Taylor. William Johnson is superintendent and mine boss. Twenty miners and five day hands are employed. It is worked on the single entry system and ventilated by a furnace and it is difficult to conduct the air to the working faces.

NEW FRANKLIN

Is a drift opening made into the number 6 seam of coal and is owned and managed by William Somerville. It was found in good condition, with two miners employed when visited.

OLIVER

Is located near Paris in Paris township. Jerry Hayman has supervision. Three miners are employed, and the coal is used for domestic purposes.

PLEASANT VALLEY

Is situated near Paris and is owned and operated conjointly by Moggs & Davis. It is a drift opening made into the No. 6 seam. On my visit I found the mine drowned out and the company were then negotiating for the necessary pumps to remove the water. Twenty miners and two day hands are employed.

CANTON & OSNABURGH BRICK AND TILE CLAY MINE NO. 1.

This mine is located in Osnaburgh township, and is the property of the Canton & Osnaburgh Brick and Tile Company. John Murley is superintendent and W. B. Duncan mine boss. Two miners and one day hand are employed in mining and hauling the clay which is manufactured into building tile and brick for paving purposes.

CANTON & OSNABURGH TILE AND BRICK CO.'S CLAY AND COAL MINE

Is owned and managed by the above company, and employs four miners and one day hand. Clay and coal are mined.

MINGLEWOOD SLOPE

Is located at North Lawrence on the Pitts., Ft. W. & C. R'y. It is a slope mine opened into the No. 1 or Massillon seam of coal. It is owned and operated by Jas. Mullens, of Wooster. T. H. Elser is superintendent and William Baumgardner mine boss. One hundred and fifty-five miners and thirty-six day hands are employed. This mine has always generated small quantities of fire damp, which is rendered harmless by efficient management. A constant current of air is kept playing through the abandoned workings thereby precluding the accumulation of sufficient carbureted hydrogen gas to be dangerous. Ten visits were made during the year and as a general rule the ventilation is good.

MINGLEWOOD SHAFT

Is situated near the Slope, and is owned and operated by the same company and under the same management. The seam is very irregular but otherwise it is a splendid mine.

CLOVER HILL

Is a shaft opening, situated on a branch of the C., A. & C. R'y, in Lawrence township, and is owned and operated by the Fox Lake Coal Company. John Featherstone has entire supervision. Five visits were made during the year. On July 31st considerable damp had accumulated in a tier of rooms on Pollock's entry as a result of the fan having either been stopped or on half motion. Orders were given that the same be run at full speed whether the mine is idle or not. One hundred and twenty miners and thirty-four day hands are employed in and about the mine.

FORREST

Is a shaft situated on the W. & L. E. R'y, in Tuscarawas township, and is the property of the Forrest Coal Company. R. H. Wainwright is superintendent and D. R. Jones, mine boss. This mine is equipped with self-dumping cages and is ventilated

by means of a fan. Five visits were made as follows: January 16th, April 27th, July 12th, September 21st and October 9th, and each time the mine was found in fair condition with the exceptions of the second east entry, which was being driven to intercept a tier of rooms and the Dodds entry where the break-throughs had not been properly closed. Also a door intended to conduct the air to the face was constantly permitted to remain open, thus denying to the men the benefits that were intended by its erection. Sixty-five miners and seventeen day hands are employed.

MASSILLON CLAY AND FIRE BRICK COMPANY

Is situated near Massillon on the P., Ft. W. & C. R'y, and is the property of the Massillon Clay and Fire Brick Company. William Hipp is superintendent and John Evans mine boss. Furnace ventilation is used. When inspected January 19th and October 23d, it was found in fair condition.

UPPER PIGEON RUN

Is a shaft two hundred and fifty feet deep, and is located on a branch of the C., C. & S. R'y, in Tuscarawas township, and is owned and operated by the Upper Pigeon Run Coal Company, with R. Keller superintendent and George Swier mine boss. One hundred and fifteen miners and twenty-one day hands are employed. Four inspections were made during the year as follows: January 24th and 25th, May 31st, and August 14th, and the mine was found in fair condition on each occasion. It was apprehended, owing to the extreme depth of this pocket, that fire damp would be generated in large quantities, but notwithstanding this, none has yet been discovered. A new air shaft has been sunk and exhaust steam is used as a means of ventilation.

SIMMONS & WILLIAMS.

This is a domestic mine located near North Lawrence. Simmons and Williams are the joint owners and operators. This product is used in domestic consumption for which purpose it is splendidly adapted. Two miners and one day hand are employed.

CANTON STONEWARE.

This mine is located on the Belden branch of the C., C. & S. R'y. It is a drift mine opened into the No. 3 seam of coal. Harry Frease is superintendent and E. S. Williams mine boss. A new air shaft and furnace greatly improve the condition of the mine. Eight miners and two day hands are employed. Was inspected March 23d and August 2d.

ORCHARD HILL

Is also situated on the Belden Branch of the C., C. & S. Ry., and is owned by the Diebold Fire Brick Company. A. Diebold is superintendent and William Kline is mine boss. The products of this mine are consumed in burning brick. Six miners and one day hand are employed.

SUMMIT HILL.

This mine is located on the Valley Ry., and is owned and operated by L. E. Smith, who is also superintendent and Peter Deeroff mine boss. Twenty-eight

miners and four day hands are employed. Furnace ventilation is used. When inspected the mine was in fair condition, with the exception of some timbering which was needed at the entrance.

BETZER

Is a domestic mine located near New Berlin, and is owned and managed conjointly by Strager & Beasicker. It was visited March 4th and August 10th, and each time found in good condition. Two miners are employed.

HOLL MINE

Is a drift opening located near New Berlin. Pfesler & Inger conjointly own and manage it. It was visited March 24th and August 10th, and on the latter date it was partly drowned out. Two miners are employed.

STARR

Is located near Canton, and is owned and managed by J. S. Davis. It was visited March 24th and August 10th, and each time it was found in fair condition.

SION HILL.

This mine is located near New Berlin. It is a drift opening owned and operated by H. B. Hassler, and the coal is used for domestic purposes. It was visited twice, and each time found in good condition. Three miners and one day hand are employed.

REMMARK & MATTIE

Is located at Canal Fulton, and ships coal over the C., L. & W. Ry. Remmark & Mattie are owners and managers. Two miners and one day hand are engaged robbing the pillars.

WARWICK SHAFT

Is situated on a branch of the C., C. & S. Ry., in Tuscarawas township and is owned and operated by Warwick Coal Company. R. Keller is superintendent and Geo. Swier is mine boss. This is a new shaft sunk in 1893, and employs twenty-five miners and eight day hands.

TUNNELL CLAY

Is situated near Osnaburgh, and is the property of the W. & L. E. Coal Company. John T. Phillips has entire supervision. Two men are employed.

SPONSELLER NO. 1

Is a drift opening made into the No. 6 seam. David Sponseller is owner and William Kitzmiller is manager. Was visited August 3d and November 3d. The air shaft ordered on the first visit was found completed and the mine in good condition. One man is employed.

ANNUAL REPORT

SPONSELLER NO. 2.

It is similar to the above mine, but is managed by L. J. Chofin. A new air shaft has been sunk. It was visited twice, when two men were found at work.

YOHE NO. 1

Is situated in Canton township, and is a drift opening made into the No. 5 seam. Three miners are employed and the product is sold for domestic purposes. Visited twice.

YOHE NO. 2

Is located near the No. 1, and is leased by W. & J. Thuelin. Was visited twice and found in fair condition each time. Two miners are employed.

KRAMER NO. 1

Is situated in Canton township. Was visited August 3d and found to have been abandoned.

KRAMER NO. 2

Is a drift opening made into the No. 6 seam, and is owned and operated by Anthony Kramer. The entries are being driven from the pit mouth. One man is employed.

SLIMER

Is a drift opening located in Canton township. Jacob Slimer is the owner and manager. The mine pierces the No. 6 seam and the coal is used for domestic purposes. One miner is employed. Was inspected twice and each time was found in good order.

JESSIE MILLER

Is situated in Canton township and is a drift opening. It is a new mine and was found in fair condition when inspected.

RUSHER

Is situated in Osnaburgh township, and furnishes employment for two miners. It is a drift opening. Was visited twice and each time it was found in good order. Frank Hines has supervision.

BROWN'S

Is owned and operated by Grant Brown. Three miners are engaged in taking out the coal. When visited August 4th, I found the air so bad as to require the closing up of the mine, pending the driving an outlet. I found this completed on November 2d and the mine in good condition.

MEISER

Is located in Osnaburgh township, and is operated by B. F. Meiser. It was visited twice and found in fair condition each time. Two miners are employed taking out the coal in No. 6 seam.

HOLL BROS.'

Is situated near Canton, in Plain township, and is owned and operated by Holl Bros., with A. Holl superintendent and mine boss. They have a furnace and were making a drain when visited August 10th.

DAVIS NO. 2

Is located near Alliance, in Lexington township, and is owned and operated by E. S. Davis, with Daniel Davis, mine boss. This is a new mine and when visited August 23d, they were making a foundation for an engine.

CARTWRIGHT

Is a drift opening made into the No. 6 seam of coal, and when visited August 25th, they were driving an entry through the hill for ventilation. The mine is in poor condition. Geo. Cartwright has entire supervision.

BEAR'S

Is situated in Paris township, and is owned by Andrew Bear. One man is employed. The mine was in fair condition when visited August 25th, with the exception of some timbers along the main entry that were ordered changed.

CLAPPERS

Is located in Paris township, and is operated by Mattie & Meiser. They were making a connection with the old mine for drainage and ventilation when visited August 25th. Twenty-five miners and five day hands are employed.

DAUM

Is situated in Osnaburgh township, and is owned and managed by Louis Daum. One man is employed. The mine is opened into the No. 6 seam and the coal is used for domestic purposes. An air shaft is used for ventilation.

MARTIN'S

Is situated in Osnaburgh township, and is managed by H. M. Martin. It was visited August 25th and found in fair condition. Natural ventilation is used.

HOLWICK

Is located in Osnaburgh township. It is a new opening and was found in good condition when visited November 3d.

RITZ

Is a drift opening made into the No. 6 seam and is located near Osnaburgh. Harmon Myers has supervision. Visited August 4th and November 2d, when one miner was employed.

DEYHOFF

Is a domestic mine located near Osnaburgh. William Deyhoff is manager and employs two miners. Fair conditions prevailed when visited.

HASSLER

Is a drift opening made into the No. 6 seam and is owned and managed by Geo. Hassler. Was visited November 3d, when two miners were employed.

OSNABURGH NEW MINE

Is situated in Osnaburgh township. It is a drift opening into the No. 6 seam of coal. The product of this mine is used in the manufacturing of brick building and draining tile. Doll Brothers are the owners. It is under the supervision of Zack Doll.

WARBURTON'S

Is located near New Berlin, and is owned by Richard Warburton, who is also manager. The coal from this mine is wagoned to Canton and is used for domestic trade.

MILLER & ZARTMAN.

This mine is situated near Osnaburgh, and is managed by Miller & Zartman. Two miners find employment here.

REIBENSTINE & SLUSSER

Is situated near Osnaburgh, and is jointly owned by Reibenstein & Slusser. Two miners are employed. The coal is used for domestic purposes.

BOWEN

Is a drift opening into the No. 6 seam of coal and is situated near Osnaburgh. Two miners are employed. The coal is used for domestic consumption.

REED NO. 5

Is situated in the vicinity of North Industry. B. F. Reed has entire supervision. This is also a domestic mine.

REED NO. 6

Is situated near Osnaburgh, and is under the same supervision as the No. 5 mine.

HENRY

Is situated near North Industry. Eli B. Darr is owner and manager. Four miners are employed mining the coal which is used for domestic purposes in the neighborhood.

CANTON STONEWARE

Is situated on the Belden track. The product of this mine is utilized in the making of wares. Harry Frease is superintendent and Edward G. Williams mine boss. Two miners are employed.

TUSCARAWAS COUNTY.

ODBERT'S NO. 1

Is located about three miles south of Canal Dover in York township, on the C. & M. Ry., and is owned and operated by the Odbert Coal Company. They employ 115 miners and twenty-four day hands. Isaac Bird has entire supervision. This mine is ventilated by means of a furnace. Was inspected three times and found in fair condition each time.

ODBERT'S NO. 2

Is a drift opening into the No. 5 seam and ships coal over the C. & M. Ry. Is owned, operated and officered the same as the No. 1 mine. The previous manager had attempted the impracticable policy of conducting the air by means of a dirt or gob partition between the double entries. These are impassible in this seam, owing to the peculiar nature of the bottom which heaves and disarranges the walls. A new furnace was erected and this affords fair ventilation. Seventeen miners and four day hands are employed.

EAGLE HILL

Is situated in Fairfield township, on the C. & M. Ry. William R. Jones is superintendent and Ebenezer Jones mine boss. Three visits were made during the year and each time the mine was found in a very satisfactory condition. Single entries provided with defective doors are used to conduct the air. The furnace receives the greatest portion of the draft from the outside and this never passes through the mine. I ordered an entry driven through the hill for an inlet, the doors repaired and the furnace so arranged as to be of some assistance in ventilating the mine. Thirteen miners and six day hands are employed.

GOSHEN NO. 1

Is located about four miles south of New Philadelphia, on the C., L. & W. Ry. It is owned and controlled by the Goshen Coal Company. The opening is a drift into

the No. 6 seam. It is provided with a steam hoisting plant, and a tail rope is used in hauling the coal from the mine to the tippie. Four inspections were made during the year. It is ventilated by means of a furnace which produces 18,800 feet of air at the inlet and 22,000 at the outlet. Joseph Brokenshire is superintendent and John Douglas mine boss. This mine furnishes employment for 115 miners and twenty-five day hands.

GOSHEN NO. 2

Is owned, operated and officered same as No. 1. This is a drift opening with a new furnace and stack, producing a current of air equal to 9,000 feet at the inlet and 10,000 at the outlet. Sixty miners and twelve day hands are employed at this mine.

TUNNEL HILL

Is situated at Mineral Point, and is owned and operated by Brick Bros. This is a slope opening driven into the No. 5 seam and provided with a steam hoisting plant. Considerable difficulty is experienced in having this mine conform to the requirements of the statutes, owing to the irregularity of the coal basin and the practice in vogue of driving single entries. I was obliged to stop Snyder's entry and several rooms, pending the erecting of brattices to conduct the air current to the working places. John Brick is superintendent and mine boss. Thirty-eight miners and ten day hands are employed.

ACME

Is situated at Mineral Point, and ships coal over the Valley Ry. It is owned by the Ohio Coal Company. John Puncheon is mine boss. Twenty-two miners and eight day hands are employed. Three examinations were made during the year and each time the mine was found in good condition.

ACME NO. 5

Is owned, officered and controlled by the same parties as the above mine. Two men are engaged in robbing pillars.

HUFF RUN.

This mine is situated near Mineral Point, and ships coal over the Valley Ry. It is a drift opening into the No. 5 seam of coal, and is owned and controlled by Ridgeway & Burton, with David Johns, superintendent, and J. J. Klien, mine boss. Four inspections were made during the year, at which times the ventilation was fair. An order to retimber the drift entrance was cheerfully complied with. Seventy-five miners and thirty day hands are employed.

SOUTH SIDE

Is located at Mineral Point, on the Valley Ry., and is owned and operated by C. E. Holden, under the supervision of Thos. Osborn. Thirty-five miners and ten day hands are employed. Owing to the extensive excavation of this mine it became necessary to sink a new air shaft to produce the necessary amount of air. The connection was made and a new furnace erected, which produced 15,000 cubic feet of air. This furnished abundant ventilation.

SOUTH SIDE, CLAY,

Is situated near and is under the same management as the coal mine. There is a shaft connection with the coal, consequently the erection of the furnace there, has improved the ventilation which was previously in a deplorable condition.

MINERAL RIDGE

Is owned and operated by the Ohio Coal Company. Geo. Marly is superintendent and E. L. Jones mine boss. The main part of the mine had to be abandoned, having been flooded by the caving in of one of the entries. A few men are employed robbing pillars.

PIKE RUN

Is located at Barnhill, in Goshen township, and ships coal on the C., L. & W. Ry. It is the property of the Tuscarawas Valley Coal Company. This is a drift opening into the No. 5 seam. Four visits were made during the year and the mine found in splendid shape on each inspection. B. F. Humphreys is mine boss. One hundred and forty miners and fifty day hands are employed.

SOMERDALE NO. 1

Is a drift mine situated at Somerdale, and ships coal on the W. & L. E. Ry. The Somerdale Coal Company own and operate the mine, with John Price, superintendent, and John Eagan, mine boss. Thirty-nine miners and fifteen day hands are employed. The difficulty experienced in reference to firing promiscuously, which was mentioned in my last report has been overcome, and the changes and improvements under contemplation last year have been completed, and a corresponding benefit has been obtained for the miners.

SOMERDALE NO. 2

Is located and is under the same management as the No. 1. John Price has entire supervision. Seventy-nine miners and thirty day hands are employed. The sinking of an air shaft, the erecting of a new and splendid furnace, the building of overcasts and a division of the air current, have reduced to a minimum the inconvenience arising from firing at noon.

NORTH SIDE

Is officered, managed and conducted the same as the above mines. A new furnace produced a fair current of air. Thirteen miners and three day hands are employed.

BROCK HILL

Is located in Goshen township, and is the property of the Brock Hill Coal Company. John M. Shenk is superintendent and John L. Davis mine boss. As indicated in last year's report considerable difficulty has been experienced in having this mine placed in compliance with the requirements of the law. In that report

I detailed the negotiations between the department and the management of the mine. It was there stated that the condition of the Brock Hill mine was deplorable, and that simple notification had failed to make any impression upon the management. We may form a conception of the condition of this mine when we know that although 150 men were employed therein, there was not sufficient air traveling to put the anemometer in motion. We had adopted a lenient course in the hope that the strife and contention that had existed between my predecessors and this company might be avoided, but subsequent developments demonstrated that no changes looking to the betterment of the mine were being made, and consequently applications were made for an injunction restraining the company from operating the plant until the same was placed in compliance with the statutes. This involved a legal contest between the state and the Brock Hill Coal Company, which ended in a victory for the state, thus settling once for all the question that no coal company can violate or ignore the clear and expressed intent of the mining law. In obedience to the court's decree, an air shaft was sunk providing an inlet and escapement way and greatly improved the condition of the mine. One hundred miners and sixty day hands are employed.

ROYAL, COAL AND CLAY,

Are the property of the Royal Fire Clay Company, and are located in Goshen township. B. F. Humphreys is superintendent and Chas. Randle mine boss. Thirty-two miners and nine day hands are employed extracting the clay and coal, which is used in the manufacture of sewer-pipe, draining-tile and fancy wares.

ROYAL, CLAY AND COAL NO. 2,

Are situated near and are owned, operated and officered same as No. 1. Two men are employed.

DIAMOND, COAL,

Is the property of the Diamond Fire Clay Company, and is situated on the C., L. & W. Ry. Three visits were made, one of which was for the purpose of investigating the death of a young man who was killed by a fall of stone. An air shaft from the underlying clay mine and a new furnace have greatly improved the ventilation. Geo. Ross has entire supervision. Seven miners and two day hands are employed.

DIAMOND CLAY NO. 1

Is situated near the above mine and is under the same management. It employs five men.

DIAMOND CLAY NO. 2

Is situated near the No. 1, and owned and officered by the same parties. Three men are employed and fair conditions prevailed on my visit.

MONARCH

Is situated on the Pan Handle Ry., at Dennison, and the coal is used for supplying the engines on that road. It is taken from the mine by means of an endless rope.

Four visits have been made during the year. Irregular break-throughs tended to weaken the current of air at the working faces. When inspected February 8th it was discovered that the inlet was partially filled with ice, thus obstructing the air current. This was ordered removed. Fifty miners and thirteen day hands are employed. Ferdinand Rutchi is superintendent and Sebastian Shane mine boss.

HUSTON

Is a drift opening into the No. 6 seam. Eli Hill is owner and Daniel O'Conner mine boss. Six miners and three day hands are employed. It was inspected February 8th and found in fair shape. They were driving an entry for drainage and air. When visited June 23d I found it closed up and abandoned.

UHRICHSVILLE, CLAY.

This mine is situated in Mill township, on the Pan Handle Ry. The product is utilized in the manufacture of sewer-pipe and building tile. Two visits were made and such improvements ordered as would place the mine in better condition. Jeff Evans is superintendent and Martin Staley mine boss. Eight men are employed.

UHRICHSVILLE, COAL,

Is also the property of the Uhrichsville Fire Clay Company, and is situated near the above mine. The sinking of an air shaft and building of a furnace and the erection of a door on the main entry all combine to improve the condition of the mine. Eleven miners find employment here.

MAPLE GROVE

Is located about one mile from Uhrichsville, and is a drift opening into the No. 6 seam. The coal is used for local purposes and is hauled in wagons from the mine. N. Hert has entire supervision.

MATHIAS

Is situated near New Philadelphia, and is a country mine supplying a domestic trade. Two men are employed. Geo. W. Mathias has supervision.

GOSHEN

Is a small domestic mine opened into the No. 6 seam. Its products are hauled in wagons to New Philadelphia and consumed in local trade. Henry Miller and Son have charge.

BRIAR HILL

Is a new opening situated near Blake's Mills. Swihart and Shearer have supervision. It is a country mine opened into the No. 5 seam.

DOVER FIRE BRICK CO.

Is situated about four miles north of Canal Dover. P. A. Arnold is superintendent with George Bahan mine boss. They are stripping the clay underlying the No. 5 seam of coal. Nine miners and two day hands are employed.

CROWN FIRE CLAY CO.

Is located about four miles north of Canal Dover in Franklin township on the C., L. & W. railway. It is a drift opening from which clay and coal are taken which are consumed in the manufactory of brick. Thomas Kemp is superintendent and Martin Clapper is mine boss. Nine miners and two day hands are employed. A new furnace supplies 9,000 feet of air.

HORN

Is located between Canal Dover and New Philadelphia in Goshen township. J. H. Horn owns and controls it. Albert Ripple has entire supervision. It is a drift opening made into the No. 6 seam and employs nine miners and one day hand. The product of this mine is hauled by wagons and consumed in the Dover rolling mill.

GOLD DUST

Is situated near Mineral Point. It is owned and operated by E. Van Kirk who is also superintendent. George Robison is mine boss. This is a very irregular deposit of No. 6 coal which occasionally emerges into the No. 5 seam. I was obliged to stop some rooms and one entry which were in advance of the air.

EASTPORT

Is situated in Mill township and is a domestic mine supplying coal to the town of Midvale. Howell Williams is the owner and manager. Two miners are employed.

SMITH'S

Is located on Pike Run road between Midvale and Dennison. It is a drift opening furnishing coal for consumption in the vicinity of its location. J. M. Smith is owner and manager.

MILLER

Is a domestic mine situated on the Pike Run road near Dennison. It is a drift opening and has furnace ventilation. William Miller owns and manages it.

CARMACK'S

Is located near Dennison in Mill township. William Stanner is owner and manager. One man is employed.

HUSTON NO. 2

Is situated near Huston No. 1 and when visited June 22d, I found the place abandoned owing to a disagreement over the lease.

TRENTON

Is situated near the village of Trenton and is owned and operated by H. C. Minnich. The product of this mine is shipped over the Ohio canal to Cleveland and intermediate points. It has furnace ventilation which produces 4,000 cubic feet of air.

MINERAL RIDGE

Is situated between Beidler and Trenton. Nicholas Hert is owner and manager. When visited July 7th I found it finished and abandoned.

WALTON RIDGE

Is also situated near Beidler. It was abandoned when last visited.

MORY RIDGE

Is located near the Ohio canal in Warwick township. C. J. Nungesser is owner and operator. Twenty-two miners and two day hands are employed. This coal is of the No. 6 seam and is shipped on the canal and disposed of for domestic purposes.

HAWKINS

Is a domestic mine in Goshen township and employs one man.

HINLEY

Is the property of J. A. Horn. R. A. White is superintendent and mine boss. It is a drift opening made into the No. 5 seam of coal and the output is hauled in wagons and used for domestic trade in the vicinity.

NEWMAN

Is a domestic mine located in Dover township. Ed. Newman has supervision and employs seven men. I found the air current weak and ordered a furnace built.

CHANDLER

Is located near Canal Dover and is the property of Osmond Salmon. Three miners and one day hand are engaged in mining coal for domestic use in the neighborhood.

WENDLING

Is located in Dover township and is owned and operated by Peter Wendling. When visited Sept. 1st I found that it had been suspended all summer. One man is employed.

STOCKDALE

Is a small mine in the vicinity of Canal Dover and owned and managed by William Stockdale. One man is engaged in mining coal for domestic use.

MAPLE HILL

Is a drift opening located in Goshen township. It is a domestic mine selling its products in Canal Dover and New Philadelphia. Seward English has entire supervision and employs two miners and one day hand. On my visit April 13th, I found no fire in the furnace and ordered one made and maintained during the warm days.

ENGLISH

Is a small domestic mine furnishing employment for three miners. C. A. Vougley is mine boss.

WHEELAND

Is a small domestic mine in which five men are engaged. The No. 5 seam of coal is mined here. When visited April 13th it was in very poor condition. I ordered brattices erected and the furnace repaired. G. W. Wheeland has entire supervision.

STONEBROOK

Is located near New Philadelphia and the coal is hauled in wagons to the pipe works. E. M. Stonebrook is owner and manager. I ordered an entry driven for an air course. Two miners are employed.

HAMER'S

Is also a domestic mine situated near Canal Dover and under the management of Peter Reaves. One man is employed. When inspected the air was insufficient and the roads were wet and muddy.

BRIAR HILL

Is situated near Canal Dover and ships coal on the Ohio canal. It is a drift opening into the No. 5 seam. Thirteen miners and three day hands are employed. Moull & Reed are the managers and owners. It has natural ventilation and was in splendid condition when visited.

CROWN COAL CO.

Is situated near Canal Dover on the C., L. & W. railway. Thos. Kemp is superintendent and Martin Clapper mine boss. The product of this mine is used at the plant where brick, sewer pipe and draining tile are made. Four miners and one day hand are employed.

MILLER

Is located near Dennison. It is a drift opening into the No. 6 seam. This coal is used in the local trade of the neighborhood. William Miller is manager.

AMERICAN FIRE BRICK CLAY AND COAL MINE

Is located near Mineral Point in Sandy township. The American Fire Brick Company are the owners. Geo. Markley is manager. The clay and coal from this mine are used at the company's brick plant. It is a drift opening into the No. 6 coal and the clay lies immediately underneath.

IRISH RUN

Is situated in Union township, near Dennison, and is owned by W. A. Davis, who is also superintendent, and W. R. Roberts mine boss. Four miners are employed driving entries and developing the mine preparatory to shipping coal in large quantities.

PILE

Is located near the former and is also the property of W. A. Davis. The mine was idle when visited, awaiting the completion of the railway.

SKEELS & ROBY

Is a domestic mine situated near Dennison. Four miners are employed. Skeels & Roby are the owners and managers. I found considerable smoke and impure air here as a result of firing at all hours of the day. I ordered this practice discontinued.

OLIVER.

This is a domestic mine located near Dennison and supplies coal for home consumption. One miner and one day hand are employed. It became necessary to stop this place until a sufficient current of air could be supplied. A new air shaft proved of little benefit owing to its defective location. John Oliver has supervision.

JESSIE.

This is a new opening from which it is intended to supply the domestic trade of that locality. William Jessie is the owner.

O'DONNELL

Is a drift opening near Dennison in Mill township. It is operated by Crooker & Todd. The product of this mine is used at the Dennison water works. I was obliged to cause a suspension of work in two rooms pending the driving of an air course to connect with the inlet.

O'DONNELL, NO. 2

Is situated near and is operated and managed as is the above mine. It is ventilated by means of a furnace and employs two miners.

WASLE

Is a domestic mine and employs two miners. It was visited October 5th and found in fair order.

DAUM

Is also a small country mine. Irregular firing and the burning of carbon oil had rendered the air unwholesome for the workmen. These practices were ordered stopped. An entry will be driven out for a return air way.

WILCOXEN

Is situated in Mill township and is a drift opening supplying coal for the local trade. Louis Wilcoxen is owner and manager. This is a new opening ventilated by means of an air shaft.

SHIPTON'S

Is located near Uhrichsville in Mill township and is owned and operated by W. A. Shipton and employs twelve miners and two day hands. Considerable difficulty was met at this mine by reason of the inability of the furnace to create sufficient circulation. This was overcome by sinking a new shaft and changing the course of air by making the late opening the inlet.

DUNLAVEY'S

Is situated near Shipton's and is owned by David Dunlavey. Two men are employed supplying coal for domestic use.

WAGNER'S.

This mine is located near Canal Dover and is owned and operated by J. A. Wagner with Samuel Carmothen mine boss. Five miners are engaged in mining coal for local use. When visited it was in poor condition. Orders were given to erect a new furnace and clean up the air course which had partly caved in as a result of neglect.

LINDEN

Is a local mine located in the vicinity of Strasburgh. Two miners are employed furnishing coal for domestic use. Earnest Howells has entire supervision.

KRAUTZ

Is also a domestic mine supplying coal for home consumption in the vicinity where it is located. Two miners are employed. William Krautz is owner and operator.

BUCKEYE COAL

Is the property of the Buckeye Fire Brick Company, of Uhrichsville. The coal is of the No. 6 seam and is consumed at the brick works. Jos. Lob is superintendent and Henry Adamson mine boss. An air shaft and furnace were the improvements made during the year.

BUCKEYE CLAY.

This is also owned and controlled by the Buckeye Fire Clay Company. It furnishes employment for five miners and is officered the same as the coal mine.

WAYNE COUNTY.

MESSENGER

Is situated near Clinton on the C., A. & C. Ry., and is owned by the Fox Lake Coal Company. George J. Huber is superintendent and mine boss. Four visits were made during the year. On the first visit I observed that when a door on the main entry was open the air current returned immediately to the upcast, instead of performing its functions around the working places. In order to overcome this I ordered the erection of an additional door to act as a check to prevent this useless waste of air. I made an examination of the safety catches finding them defective, and posted a notice to that effect forbidding anyone to ride upon them until repaired. One hundred and twenty miners and thirty-nine day hands are employed.

BURTON CITY

Is situated near Burton City in Baughman township, and is a domestic mine employing eleven miners and one day hand. The coal is reached by a shaft. Exhaust steam is used as a means of ventilation. The coal is interstratified with sandstone, but is of good quality.

LAWSON

Is a shaft opening located near Burton City. It is a domestic mine supplying coal for the community in which it is located. Peter Lawson is owner and manager. Three miners are employed.

REPORT OF EBENEZER LEWIS,

Inspector of the Seventh District, from November 15, 1892, to November 15, 1893.

Hon. R. M. HASELTINE, Chief Inspector of Mines:

DEAR SIR: As inspector of the seventh district composed of the counties of Medina, Summit, Portage, Mahoning, Trumbull and part of Columbiana, I have the

honor to submit herewith my annual report of the work done throughout the year ending November 15, 1893.

During the year three hundred and ninety-four visits were made to the various mines for the purpose of inspecting the mine workings, testing scales and investigating the cause of fatal accidents.

The places visited, together with the improvements ordered and made, will be found in the accompanying table.

There were four fatal accidents in this district during the year. Two of the parties killed, Richard Mazey and Richard Martin, met death through carelessness while filling a cartridge with powder which was ignited by a spark from one of their lamps; one lived ten and the other seventeen days after the accident before death relieved them from their sufferings. The other two victims were boys, one of whom was killed at the Cherry Valley No. 2 mine by a fall of slate and the other at Carbon Hill mine by being caught between the mine car and the rib.

Very little trouble was met with either from miners or operators in securing a compliance with the laws. At Cherry Valley No. 3 mine before the second opening was made we were compelled to enforce the law preventing firing at all hours of the day. It was here the miners sought to evade the law, but all are now satisfied.

Strikes were not extensive or numerous during the year. A small one occurred in Columbiana county over the fixing of mining rates for the No. 3 vein, and another at three mines in East Palestine of the same county was caused by the operating companies reducing mining rates seven and one-half cents per ton. The miners were on a strike for three months against the reduction, but lost the strike and accepted the operator's terms.

The kindly treatment which I have every where received from miners and operators within my district has only been equaled by the courteous treatment and valuable assistance given me by you, and I desire here to tender to them and to you my sincere thanks.

Respectfully submitted,

EBENEZER LEWIS,
Inspector Seventh District.

KRUMROY, *November 15, 1893.*

COLUMBIANA COUNTY.

PLEASANT VALLEY NO. 1.

This is a drift mine located one and one-half miles from East Palestine on the P., M. & C. R'y, and is operated by the Sutherin Mining Company. James W. Sutherin is superintendent and mine boss. Inspected November 16, 1892, and January 12th, March 28th, June 9th, August 15th and November 14, 1893. On the first visit I found a new air shaft and a small furnace had been built. The ventilation was fair, but was improved later on by the sinking of an air shaft to the No. 3 drift so that the air traveled through the No. 2 to No. 3 mine and then through the shaft to the No. 1 mine. Thirty miners and two day hands are employed.

PLEASANT VALLEY NO. 2.

This mine is a drift opening owned and managed by the same company as the No. 1 mine. Visits were made to it on November 16, 1892, and January 12th, March

28th, June 9th, August 15th and November 14, 1893. When first visited I found the mine idle. On my second visit eight rooms were stopped until they were properly ventilated. On later visits I found a forcing fan had been erected at the mouth of the drift. When last visited the ventilation was very good. Eight miners and one day hand are employed here.

PLEASANT VALLEY NO. 3

Is owned and operated by the same party as No. 1 and No. 2 mines before mentioned and visits were made to it on the same dates. On my first visit but little work was being done. On my second inspection I found that rooms 4, 6, 8 and 10 had caved the previous night and the men were busy clearing the air passage which was also obstructed. On the third visit I ordered a door placed on the drift inside of first north room. When last inspected the ventilation was very good. Thirty-five miners and eight day hands are employed.

PROSPECT SLOPE

Is located at East Palestine on the P., Ft. W. & C. R'y. The lease of the Sutherin Mining Company having expired on October 1, 1892, the mines were being operated by the owners, Filer and Lawton. Mr. Enoch Filer, jr., is superintendent and Samuel Huhn mine boss. It was visited November 17th and 18, 1892, and January 12th, March 28th, June 8th and August 21, 1893. On the first visit I found that that part of the engine which propels the fan had been stolen and men had been substituted to turn it. They were only able to run the fan forty-three revolutions per minute, producing a volume of air entirely inadequate, but as it was the best that could be done under the circumstances, the mine was permitted to run. The next day an engine was secured and attached to the fan; a watchman was then placed to guard the property. On a later visit I stopped the Ely and Ward entries, they being ahead of the air. When last visited the Johnson entry was found to have been driven out to the surface and preparations were being made for placing a fan and making a traveling way. Fifty-seven miners and fifteen day hands are employed.

STATE LINE SLOPE

Is situated at East Palestine on the P., Ft. W. & C. R'y. It is owned by the State Line Coal Company, with Hugh Laughlin superintendent and Richard Leake mine boss. Visits were made January 11th, March 30th, June 7th, August 23d and November 15, 1893. On the first visit I found the contractors repairing the entries and turning the rooms. On later visits I found the mine well ventilated. Twenty-four miners and ten day hands are employed.

STATE LINE DRIFT

Is located at East Palestine, and is owned and managed by the same company as the Slope mine. Visits were made January 11th, March 30th, June 7th and 23d and August 23, 1893. On each inspection I found the mine in good condition. On November 15th the miners were on a strike against a reduction of seven and one half cents per ton. Sixty-five miners and twenty-one day hands are employed.

CHERRY VALLEY NO. 2.

This mine is a drift opening located at Washingtonville on the New Lisbon branch of the N. Y., P. & O. R'y, and is operated by the Cherry Valley Iron Works Company. Thos. R. Lewis is superintendent and M. J. Brady mine boss. It was inspected on November 30, 1892, February 7th, April 8th and 19th, June 21st, August 29th and 30th, September 30th and October 27, 1893. On my first visit No. 23 west butt entry was found to be seventy feet ahead of the air and I stopped it until the air was brought up and a door which I had ordered placed on the last room. On my second visit I again found the No. 23 west butt entry seventy feet ahead of the air and again stopped it until the air was brought up. On April 8th I was called here to investigate the cause of the death of John Hall, a boy but sixteen years of age who was killed by a fall of slate. On the inspection, August 29th, I found the mine filled with black damp caused by the mine being idle for several days previous, during which there was no fire in the furnace. This being the case on this day, the men were immediately ordered out. On the next morning, August 30th, the black damp had been removed and a good current of air was traveling through the mine. On September 8th I tested the scales and found them correct. On October 7th I found the ventilation weak at the face of the workings. Mr. Welker agreed to have a fan erected as soon as possible. Fifty miners and two day hands are employed.

CHERRY VALLEY NO. 3

Is a slope mine located in the same vicinity and is operated by the same company as the No. 2 mine. Visits were made to it on November 30, 1892, February 7th, April 9th, June 21st and 23d, August 29th, September 8th and October 27th, 1893. On the first named date the north face and the No. 3 butt entries were found ahead of the air and were stopped until the air was brought up. I also found the mine full of powder smoke and I posted a notice forbidding firing during the working hours. On a later visit a slope to the No. 2 mine had been made and the same furnace was ventilating both mines. On September 8th, I tested the scales and found a block under the woodwork which, after being removed, they balanced correctly. On my last visit, I found the ventilation good. Ninety miners and seventeen day hands are employed.

QUAKER VALLEY

Is a drift mine located at Rogers on the P., M. & C. Ry., and is owned and operated by the Quaker Valley Mining Company. J. M. Walters is superintendent and William Weikart mine boss. It was visited December 8th, 1892, February 1st, April 13th, June 15th, August 24th and November 1st, 1893. During the fore part of the year, a rope haulage was put in the mine and a fan erected. During the summer work was suspended owing to the financial stringency and want of orders. On my last visit work had been resumed on the co-operative system. The ventilation was good. Twenty-one miners and three day hands are employed.

PINE HOLLOW

Is a drift mine located near Salem, and is operated and managed by James Ashman. It was visited on March 23d, June 28th and September 28th, 1893. When first visited the condition of the mine was good, while on the second, I found the Taylor entry ahead of the air and it was stopped until the air was brought up. On my last visit, the ventilation was fair. Eight miners and one day hand are employed.

CENTRAL SLOPE

Is located at New Lisbon on the branch of the N. Y., P. & O. Ry., and is operated by the Sterling Mining Company. W. H. Warner is superintendent and John Hileman the mine boss. This mine was visited on December 9th and 22d, 1892, and January 31st, February 1st, April 12th, June 13th, August 19th and November 1st, 1893. On my first visit I found the work had been resumed after a strike. On December 22d, I tested two pairs of scales and found them accurate. On my next visit, I found a considerable quantity of gas in different parts of the mine and ordered all of the men out, except Peter Keating, who was allowed to drive an air course using a safety lamp. I also ordered a brattice at the face of the No. 1 and No. 2 butt entries. On the next morning at 6 o'clock A. M., February 1st, in company with Jas. Blunyer, a committee man, I examined the mine and found the brattice erected at the face of the entries, and the mine free from any gas. I ordered all entry men and air course drivers provided with safety lamps. I also ordered a gate at the mouth of the slope. Since this date an air course has been driven to the face of the entries and the mine is in good condition. All previous orders have been complied with. Thirty-six miners and six day hands are employed.

SALEM

Is a drift mine located on the Salem Ry., which runs from Salem to Washingtonville where it connects with the New Lisbon branch of the N. Y., P. & O. Ry. It is owned by the Salem Coal Company. Wm. Dunn is superintendent and mine boss. Coal was reached here on January 21st, 1893. Visits were made on February 8th, April 17th, June 22d, August 31st and October 25th, 1893. I found the mine in good condition. An air shaft had been sunk and a stairway built and a new fan erected and in operation. Seventy miners and ten day hands are employed.

SARATOGA NO. 1

Is a drift mine located near Lisbon, on the N. Y., P. & O. and P., M. & C. Rys., and is owned by Card & Prosser. Thos. Prosser is the superintendent and mine boss. It was visited on December 8th, 1892, and February 2d, April 14th, August 16th and October 31st, 1893. On my first inspection, I found the ventilation weak at the face of the workings, but superintendent Prosser agreed to place a steam jet at the air shaft at once. On later visits I found the ventilation but little improved and I ordered the inlet enlarged. When last visited my orders were found complied with and the ventilation was very fair. Twenty miners and three day hands are employed.

SARATOGA NO. 2

Is a slope mine located near New Lisbon and owned and managed by the same party as the Saratoga No. 1 and was inspected on the same dates. On the first visit, work was found to have resumed after a short strike. On the next visit, February 2d, 1893, I learned that a slight explosion had occurred in the mine on Sunday, January 1st, caused by two men and a boy who were not employed at the mine entering in search of lost tools encountering the gas. They escaped with little personal injury. In company with the mine committee, Thomas Bennet, I made an examination of the mine and found no trace of gas. I ordered safety lamps furnished both the entry and air course men and gates placed on both the

slope and inlet and that they be kept locked when the mine was not in operation. On my next visit, I found better ventilation resulting from the use of a new ten foot fan. When last visited I found no sign of gas and the ventilation was good. Thirty-five miners and thirteen day hands were employed.

CARBON HILL

Is located at East Palestine, and is owned by the East Palestine Coal Company. The coal is shipped over the P., Ft. W. & C. Ry. W. S. Lewis is superintendent and mine boss. This mine was visited November 18th, 1892, January 10th, March 10th and 29th, June 6th and August 22d, 1893. On the two former visits I found the Dally and Chaldron entries had been driven beyond the legal distance of air limits and I ordered them stopped until the air was brought up. I ordered several break-throughs made and some check doors placed on each entry. I was called here on March 10th to investigate the cause of the death of Thos. Stoves, a trapper, caused by being crushed between a loaded car and the rib. On my latter visits I found the mine in good condition. One hundred and forty miners and twenty day hands are employed.

STANDARD.

This mine is located on the principal street of New Lisbon, and is owned by the Standard Coal Company. J. B. Warner is superintendent and Edward Hardy mine boss. On my first visit, January 30th, 1893, the shaft was down fifty five feet. The boilers are the proper distance from the shaft. On the next visit, April 11th, I learned that the coal had been reached on March 23d at a depth of seventy-five feet. When visited, June 13th, August 18th and November 28th, 1893, the mine was found in good order. Nineteen miners and three day hands are employed.

CHAMBERLAIN

Is a retail mine at East Palestine, and is owned and operated by John Jones. It has natural ventilation. On the following visits, viz., January 13th, March 27th, June 8th, August 22d and November 14th, I found it in good order. Two miners are employed.

COLEMAN, CLAY,

Is located near New Lisbon, on the N. Y., P. & O. Ry., and is operated by the Union Fire Clay & Stoneware Co., with Chas. S. Coleman superintendent and mine boss. I visited this mine December 7th, 1892, February 4th, April 11th, June 6th, August 19th and November 3d, 1893. I each time found it in good condition, with two miners and two day hands employed.

CEMENT

Is a drift mine situated near New Lisbon, on the N. Y., P. & O. Ry., and is owned by the Ohio Cement Company. A. G. Smith is superintendent and Evan J. Evans mine boss. On my first visit, December 7th, 1892, Ben Francis' butt entry was found seventy feet ahead of the air and was stopped until a break-through was made and the air brought up. Later visits were made April 11th, August 18th and November 2d, 1893, finding the mine working but little. The ventilation was very good. Sixteen miners and one day hand are employed.

WHEAT HILL

Is a retail mine at East Palestine, and is owned by Atchison & Company. James Flemming has charge. Visits were made on November 18th, 1892, March 29th, June 8th, August 21st and November 15th, 1893. It had natural ventilation, but during the year an air shaft has been sunk in the face of the workings and they contemplate building a furnace at the mouth of the drift. Four miners and one day hand are employed.

WARNER.

This is a shaft mine located at New Lisbon and is owned by J. B. Warner. When visited on December 9th, 1892, I found it had been abandoned.

NEIHEISEL

Is a retail mine located one and one half miles east of Leetonia, and is owned by Elizabeth Neiheisel. Fred Neiheisel is superintendent and mine boss. Was visited on December 2, 1892, February 10th, April 21st and November 3, 1893. On the last visit an air shaft had been completed and the ventilation was good. Nine miners are employed.

EMMA, CLAY.

This mine is located near New Lisbon, and is owned and operated by the U. S. Fire Clay Company. W. D. Bristol is superintendent and Daniel Walls mine boss. Six visits were made during the year, viz.: December 6, 1892, January 30th, April 10th, June 12th, August 17th and October 30, 1893. Each time found the mine in good order with six miners and two day hands employed.

VULCAN, CLAY,

Is a drift mine located at New Lisbon, and is owned by the Ohio Sewer-Pipe Company, with W. D. Bristol, superintendent, and Daniel Walls, mine boss. It was visited on December 6, 1892, January 30th, April 11th, June 12th, August 16th and October 30, 1893. On the first visit I found the mine in good condition. On the latter visits it was idle, there being no demand for clay. When the mine is working six miners and two day hands are employed.

LONGANECKER.

This is a retail mine located two miles west of Leetonia, and is operated by Longanecker & Zimmerman with Chas. Zimmerman superintendent and mine boss. Visited April 20th and November 15, 1893. A new air shaft was made during this year. The mine was found in good order on each inspection. Five miners are employed.

ZIMMERMAN DRIFT

Is a retail mine located one mile north of Longanecker shaft, and is operated and managed by Frank Exten. Two visits were made during the year, viz.: April 20th and November 15, 1893. It has natural ventilation. Four miners are employed.

WALNUT HILL

Is situated near Washingtonville, and is owned by Thomas R. Lewis, and is operated by John Smith. Was inspected on November 28, 1892, and February 8th, April 17th and October 17, 1893. On my second visit I ordered stoppings closed and doors placed on three rooms in the first west butt entry. On my third visit I found work suspended. When last visited work had been resumed by John Smith, who has leased the mine from Thomas R. Lewis. One miner is employed.

SHEAN SHAFT.

This is a retail mine located near Salem, and is owned by James Shean. William Shean is mine boss. On the first visit, March 22d, I ordered canvas across the entry outside of the upper room. On June 29th it was found idle, while on September 28th it was found in good order. Nine miners and two day hands are employed.

FIRST NATIONAL.

This is a drift mine located near Salem, and is owned by J. C. Trotter. Thos. Crooks is mine boss. Was visited three times, viz.: March 24th, June 28th and September 27th. The condition of the mine was found good upon each inspection. Four miners are employed.

AMERICAN, CLAY.

This is a drift mine located near New Lisbon, and is owned by the Keystone Fire Clay Company. Fred Pritchard is superintendent and John Gillis mine boss. Five visits were made during the year, namely: December 7, 1892, April 11th, June 16th, August 18th and November 2, 1893. On the first visit I found the mine in fair condition. Later very little work was being done owing to financial troubles. Two miners are employed.

BRIAR HILL.

This is a drift mine located near Washingtonville, on the Salem Ry., and is operated by Stoffer & Lewis. Frank Lewis is superintendent and mine boss. Was visited February 8th, April 17th, June 22d, August 31st and October 25th. It has natural ventilation. On the last visit an air shaft had been completed. I ordered a furnace built and a door placed on the main entry. Five miners are employed.

MAHONING COUNTY.

BELOIT

Is situated near Beloit, the coal being shipped on the P., Ft. W. & C. Ry. It is owned by the Youngstown Paving Company. Frank Barber is superintendent and Thomas Ritchie mine boss. It was visited March 21st, June 27th and September 26th. Work had been resumed in November, 1892, having been idle since the pre-

ceding March, owing to the engine-house and machinery having burned down. On the first visit I found a new fan erected. The ropes, safety catches and ventilation were good. I ordered some water removed from the manway and gates placed on the first landing. On the second visit all were found in good order. On the last visit the ventilation was good, but the safety catches were out of order. A notice was posted forbidding the men from riding until the safety catches were repaired. Twenty-four miners and ten day hands are employed.

TIPPECANOE

Is a shaft mine located seven miles from Youngstown, and is owned by the Foster Coal Company. K. Head is superintendent and mine boss. Inspections were made on December 5, 1892, January 25th and 27th, April 2d, June 2d, August 10th and October 9, 1893. On the three former inspections the ventilation was found to be good, but the safety catches were worthless and a notice was posted forbidding men from riding on the cages till they were repaired. On the next inspection I found Ed. Bevans' butt entry ahead of the air and stopped it till the air was brought up. The safety catches were found in good order. When last visited the ventilation was good, but the safety catches were out of order again and a notice was posted forbidding men to ride until they were repaired. Seventy-five miners and thirty-one day hands were employed.

NATIONAL, SOUTH.

This mine is located at Washingtonville, on the New Lisbon Branch of the N. Y., P. & O. Ry., and is owned by the Walter & Ferris Coal Company. John M. Walter is superintendent and James H. Thompson mine boss. Four visits were made during the year, viz.: November 29, 1892, February 6th, April 18th and June 20, 1893. On the two former visits pillars were being drawn. On the third visit too much water prevented work, while on the fourth I found the coal exhausted and the mine abandoned.

NATIONAL, NORTH,

Is operated and managed the same as the National, south. It was visited on November 29, 1892, and February 6th, April 18th, June 20th, August 28th and October 26, 1893. On the four former visits I found one or more entries ahead of the air and stopped them until the air was brought up. On the last visit pillars were being drawn and the mine will soon be abandoned. Sixty miners and ten day hands are employed.

FAIR VIEW

Is located at Washingtonville, on the New Lisbon Branch of the N. Y., P. & O. Ry., and is owned by the Fair View Mining Company. W. P. Arms is superintendent and James C. Weikart mine boss. It was visited on December 1, 1892, February 9th, April 18th, June 19th, September 1st and October 26, 1893. On the former visits break-throughs were ordered made in several rooms. On my latter visit most of the men were drawing pillars. I found the ventilation fair. Forty-eight miners and ten day hands are employed.

POLAND

Is located in the village of Poland. It is owned by the Poland Coal Company, with A. J. McCartney superintendent and William Young mine boss. Six visits were

made during the year, viz.: November 23, 1892, January 24th, April 5th, June 1st, August 8th and October 10, 1893. On each inspection I found the mine well ventilated and in good order. When last visited they were drawing pillars on the west side. Forty miners and fourteen day hands are employed.

THE "A" SHAFT

Is situated near Palmyra, and ships coal over the L. E., A. & N. Ry. It is owned by the Palmyra Coal Company. Geo. Harrison took charge of this mine on April 1, 1893, as superintendent and mine boss. The mine was inspected December 20, 1892, February 29th, May 25th, July 31st and October 30, 1893. On my first visit the entries were stopped until the air was brought up. The mine was found idle on the next visit, owing to disagreement as to the prices to be paid for mining the coal. When last visited no entries were being driven, and the pillars were being drawn in a part of the west side. The ventilation is good. Thirty-eight miners and nine day hands are employed.

GREENAMYER SHAFT.

This is a retail mine located near Salem, and is owned by Howells & Ashman. It has been leased to James Lippitt, who acts as superintendent and mine boss. It was visited on March 23d, June 28th and September 27, 1893. When visited each time the mine was found in good condition. Six miners and three day hands are employed.

BRIAR HILL

Is located at Youngstown and is owned and managed by Thos. Tyrrell. It was visited on August 7th, September 6th and October 12th. When first visited I found the shaft down sixty-six feet and within two and one-half feet of the coal. This shaft was sunk on a drill hole into the Todd mine, which was abandoned many years ago. He has started a rock entry going southeast where it is expected to strike the hill coal left at the time of abandonment. They were notified to use the necessary precaution for safety. On my second visit, in company with Chief Inspector Haseltine, we examined the machinery and ordered a new rope, safety catches and a safety gate on the landing. A four-foot fan is used for ventilating the mine. On my last visit they had struck through into the old Todd mine and were being troubled with foul air. I repeated the order for a new rope and safety catches. Five miners and two day hands are employed.

NEW WITCH HAZEL SHAFT

Is located near Kyle's Corners near Youngstown and is owned by the Witch Hazel Coal Company. George Harrison is superintendent and mine boss. When visited on October 10th, I found six men employed in making preparations to pump water out of the mine. This mine has been idle since April, 1892.

DUNN.

This is a retail mine situated near Salem and is owned and operated by Homer Dunn. When visited on March 23d, I found that the territory belonging to this mine had been leased by the Salem Coal Company, and when visited on June 22d, I found it had been abandoned.

BARBER

Is a retail mine located near Beloit, and owned and operated by Barber Brothers. Thos. Barber is superintendent and mine boss. It was inspected on March 21st, June 27th and September 26th. When visited I found they had built a new furnace and the mine was well ventilated. I ordered gates placed on the upper landing. On the last visit I found that my requests had been complied with. Four miners and two day hands are employed.

GARFIELD

Is located at Garfield Station on the P., Ft. W. & C. Ry. It is owned by the Garfield Mining and Brick Company. Major Clemer is superintendent and John Good mine boss. When inspected on November 1st, it was found in good condition. Eleven miners and one day hand are employed.

WATKINS

Is located at Mineral Ridge and is operated by Watkins & Daniels. When visited on October 12th it had been abandoned.

POWE.

This is a retail mine located three miles north of Salem, and is operated by Godward & Sons. Frank Godward is superintendent and mine boss. I visited this mine on March 22d, June 29th and September 28th, and each time found it in good condition. Six miners and two day hands are employed.

AULD

Is located near the Powe mine and is operated and managed by Robert Auld. It was visited on March 22d, June 29th and September 29th. On my last visit the face of the workings was found charged with black damp, and the men were ordered out until the mine was properly ventilated. Six miners are employed.

HEMINGWAY

Is a retail mine located between Alliance and Beloit. It is owned and managed by Henry Bandy. It was inspected on June 26th and September 25th, and each time it was found in excellent condition. Two miners and one day hand are employed.

URMSON

Is a retail mine located near Beloit, and is operated by Ralph Urmson, who is also superintendent and Frank Urmson mine boss. It was visited on March 14th, June 27th and September 26th. It has natural ventilation. Two miners and one day hand are employed.

PARKER.

This is a small mine located near Salem, and is operated by Sheldon Parker. It was visited March 24th and September 27th. It has natural ventilation and employs one miner.

STANLEY

Is a retail mine located near Beloit, and is operated by Godward Brothers. Charles Godward is superintendent and mine boss. Three visits were made during the year, viz., March 21st, June 27th and September 26th. The ventilation was improved by building a furnace at the mouth of the drift. Six miners and two day hands are employed.

SHEPHERD

Is a retail mine located near Salem, and is owned and operated by John C. Shepherd. Harry Holland is mine boss. It was visited March 22d, June 29th and September 28th. A small furnace built at the mouth of the drift has greatly improved the ventilation. One man is employed

URMSON

Is a retail mine located near Beloit and operated by Ralph Urmson. Three visits were made during the year, viz.: March 21st, June 27th and September 26th. It has natural ventilation which was found to be sufficient on each visit. Two miners and one day hand are employed.

SEARS

Is situated near the Auld mine and is also a retail mine operated by David Coy. Was visited March 22d, June 30th and September 29th, and was each time found in good condition. Six miners are employed.

BEACH RIDGE DRIFT

Is a small mine located near the Auld mine, and is owned and operated by Thomas Leipper. Was visited September 29th, when one miner was found employed.

STONE DRIFT

Is a retail mine located near Salem, and is operated by Stephen Stone. Was visited March 24th and September 27th. It has natural ventilation. One miner is employed.

MEDINA COUNTY.

ELDORADO SHAFT

Is located near Wadsworth and is owned by Card, Barrett & Co., with O. V. Dibbel superintendent and Cyrus V. Evans mine boss. It was visited May 17th, July 11th

and October 4th. After ten months' suspension work was resumed April 18th. A second opening has been completed and a fan erected and in operation. I ordered safety gates at both landings. The ventilation was good. Seventy-five miners and eleven day hands are employed.

CARD SLOPE NO. 1

Is located near Wadsworth and is owned and managed by the same company as the Eldorado Shaft. Three visits were made during the year, December 14, 1892, February 16th and May 17, 1893. On the two former dates pillars were being drawn and on the latter visit I found the mine had been abandoned.

EXCELSIOR NEW SLOPE

Is located at Silver Creek, on the N. Y., P. & O. R'y. and is owned by the Excelsior Coal Co. William Ledyard is superintendent and William Sinister mine boss. It was visited December 12, 1892, February 13th, May 18th, July 10th, and September 5 and 19, 1893. On the two former visits the mine was found in good condition. On the latter visit owing to its being idle the water had accumulated in twenty rooms. I tested the scales and found them accurate. One hundred miners and seventeen day hands are employed.

RASOR SLOPE

Is located on the Card Switch of the N. Y., P. & O. R'y. It is owned and operated by W. B. Coleman who acts as superintendent and Joseph Jordan mine boss. It was visited on December 13, 1892, February 14th, May 16th, July 12th and September 20, 1893. On each inspection the mine was found well ventilated. The coal in this mine is full of horse backs and the prospects are discouraging. Twenty miners and six day hands are employed.

STONY RIDGE.

This mine is situated near the El Dorado Shaft and is owned by the Akron Coal Company. V. Gerstenschlagen is superintendent and John Collier mine boss. It was visited on December 15, 1892, February 17th, May 17th, July 11th and October 3, 1893. On each inspection I found the mine in good condition. Forty-eight miners and twelve day hands are employed.

HUDSON RUN SLOPE

Is situated near Wadsworth and is owned by the Brewster Coal Company. Frank Meecham is superintendent and John Hutchison mine boss. Was visited November 8th, when I found that work had been resumed and preparations were being made to ship coal. Twenty miners and six day hands are employed.

EXCELSIOR SLOPE NO. 2.

This is a new mine located one mile south of Silver Creek and is owned by the Excelsior Coal Company. William Ledyard is superintendent and mine boss. It

was visited on May 2d and 29th and July 10th. During the two former visits the slope was being constructed and when last visited I learned the coal had been reached on June 18th, but the mine would be idle till a switch could be built.

COLEMAN.

This is a new shaft mine situated near Wadsworth, and is owned and operated by W. B. Coleman, with Joseph Jordan mine boss. It was visited on September 20th and November 8th. On the first named date the shaft was down forty-five feet. On the last visit the coal had been reached and the tippie was being built and the machinery set. Six men are employed as day hands.

COLLIER.

This is a retail mine situated near Wadsworth, and is owned and operated by W. B. Coleman. Henry Davis is mine boss. It was visited December 16, 1892, March 7th, July 12th and September 21, 1893. On each inspection the mine was found in good condition. Ten miners and two day hands are employed.

SHARON SLOPE

Is a retail mine situated near Sharon Center, and is operated by Birkbeck Bros., with John Birkbeck superintendent and mine boss. It was visited on March 6th, July 12th and September 20th. On each inspection the ventilation was found to be good. Six miners and one day hand are employed.

HAMILTON DRIFT.

This is a retail mine located near Wadsworth and is owned by the Cunningham Coal Company. Geo. Hamilton is superintendent and mine boss. When first visited on March 6th it was found idle. On my last visit on October 2, 1893, the ventilation was found weak at the face of the workings. Some break-throughs were ordered closed. Five miners and one day hand are employed.

HIGH BRIDGE GLEN

Is a slope mine and is located at Silver Creek, and is operated and managed by Adam Weinsheimer. Three visits were made to this mine during the year, viz.: December 16, 1892, February 15th and May 4, 1893. On the two former visits the ventilation was insufficient at the face of the workings and an air shaft was ordered. When last visited I found the work had been suspended.

TOWN LINE SLOPE

Is a retail mine located near Wadsworth, and is owned by Chas. J. Beese and managed by Frank Reikart. Was visited March 7th and September 21st and each time found the ventilation sufficient. Six miners and two day hands are employed.

PORTAGE COUNTY.

SCOTT

Is located at Palmyra, on the L. E. A. & N. R'y, and is operated by the Scott Coal Company. John F. Filer is superintendent and John Sutcliffe is mine boss. It was visited on December 20, 1892, March 3d, May 25th, August 30th and October 16, 1893. On each visit most of the men were working on the pillars. The ventilation was good on the first visit, but the safety catches were worthless and I posted a notice forbidding men from riding on the cages until they were repaired. On the last visit I found them in good order. Thirteen miners and four day hands are employed.

FILER'S NEW SHAFT

Is situated near Kean's Station on the L. E., A. & N. R'y. It is owned and operated by the Filer Coal Company. John F. Filer is superintendent and Hugh B. Evans mine boss. Visits were made on December 19, 1892, March 2d, May 24th, August 2d, September 16th and 22d and October 18, 1893. On all the above dates I found the ropes and safety catches in good order. On August 2d I found an air shaft completed, which furnished good ventilation to the mine. On September 16th I was called to investigate the cause of the death of Richard Mazey, a miner, and again on September 22d to investigate the cause of the death of Richard Martin. Both were injured at the same time while making a cartridge and by some means a keg of powder exploded while they were filling the cartridge. Seventy-three miners and thirteen day hands are employed.

HUTSON NO. 1.

This mine is located near Davis Station on the L. E., A. & N. R'y. It is owned and operated by the Hutson Coal Company. Captain H. D. Hutson is superintendent and Thos. J. Williams mine boss. It was visited December 21, 1892, March 1st, May 23d, August 4th and October 19, 1893. On each inspection I found the ventilation fair. Sixty-three miners and twenty-one day hands are employed.

HUTSON NO. 2

Is situated near Hutson No 1 and is managed by the same company. Was visited December 22, 1892, February 28th, May 22d, August 1st and October 17, 1893. On each inspection the mine was found in good order. The east side rope was found defective and a notice was posted forbidding all men from riding on the cage until a new rope was secured. Fifty-five miners and seventeen day hands are employed.

"B" SHAFT

Is located near Diamond Station on the L. E., A. & N. R'y, and is operated by the Palmyra Coal Company, with W. P. Arms superintendent and Hugh B. Evans mine boss. When visited, December 20, 1892, it was found to be abandoned.

WHIP-POOR-WILL.

This is a new mine located three miles north of Palmyra Center, and is operated by Chas. Erb & Co. When visited on May 26th, I found three men employed sinking a shaft.

ANNUAL REPORT

SUMMIT COUNTY.

LAKE VIEW SHAFT NO. 2

Is located on the Todd branch of the Valley R'y, and is owned by the Lake View Coal Company. A. J. McCartney is superintendent and William Phillips mine boss. Was visited on January 2d, February 23d, April 25th, July 14th, September 14th, October 7th and November 6th. On each of the above named dates I tested the safety catches and ropes and found them in good order. On the second, fourth and last visits I found the air insufficient and each time ordered the necessary improvements. Sixty miners and sixteen day hands are employed.

SUMMIT BANK SLOPE.

This mine is situated on the Todd branch of the Valley R'y, and is operated by the Summit Bank Coal Company. James H. Burt is superintendent and William Meredith mine boss. Was visited December 29, 1892, and February 20, 1893. On the first visit nineteen miners and five day hands were employed in drawing pillars and taking out pumps. When last visited I found it abandoned.

THOMAS NO. 2 DRIFT

Is a retail mine located near Tallmage, and is operated by H. Thomas & Co., with H. Thomas superintendent and Phillip Thomas mine boss. Was visited January 4th, March 9th, September 13th and November 9th. It has natural ventilation. On the last visit the mine was idle. One miner is employed.

THOMAS NO. 3 DRIFT.

This is a retail mine situated near Tallmage and is owned by the same parties as Thomas No. 2. John Thomas is mine boss. Was visited January 4th, March 9th, September 13th and November 9th. On the first visit Joe Robison's room was stopped until it was properly propped. Subsequent visits found the mine in good order. Eighteen miners and one day hand are employed.

PLEASANT VIEW SHAFT

Is located near Cuyahoga Falls. It is a machine mine owned by the Cuyahoga Falls Coal Co. William L. Thomas is superintendent and C. F. Thomas mine boss. Visited January 4th, April 27th and September 13th and each time found the ventilation good and the ropes and safety catches in good order. Five miners and one day hand are employed.

TURKEY FOOT SHAFT

Is situated near Manchester on a branch railway built to the mine and is owned by the Brewster Coal Co. Frank Meecham is superintendent and John S. Davis mine boss. I visited this mine December 27th, 1892, February 24th, May 19th, July 13th and November 10th, 1893. Each visit I found the ropes and safety catches in good order and the ventilation good. On the former visits the south face entry was ahead of the air and was stopped until the air was brought up. Platforms were placed in the air shaft as previously ordered. One hundred miners and thirty day hands are employed.

SOUTH END DRIFT.

This is a new drift located between East Akron and Tallmage and is owned by the South End Coal Co. Daniel Dodd is superintendent and mine boss. This mine is working toward the Thomas abandoned mine and orders were given to keep search holes ahead. It has natural ventilation. Visited March 9th, April 27th, September 13th and November 9th. Two miners and one day hand are employed.

AKRON CLAY MINE

Is located near North Springfield and is operated by the Akron Stoneware Co. John Grant is superintendent and mine boss. Visited February 21st and October 5th. It has natural ventilation and when last visited was found idle.

SWINEHART, CLAY.

This mine is situated near North Springfield and is owned by J. B. Woods. Oliver Swinehart is mine boss. I visited this mine January 5th, April 25th and October 6th. On the first two named dates the mine was found in good order and when last inspected they were repairing the slope. One miner is employed.

RHODES, CLAY,

Is located near North Springfield and is owned by Myers & Hall. Francis O'Neil is mine boss. This mine was visited January 25th, February 21st, April 26th and October 5th. On the former visits pillars were being drawn and when last visited it was found to be abandoned.

U. S. CLAY MINE

Is located near North Springfield and is owned by the U. S. Clay Co. James Rees is mine boss. It has natural ventilation. Visited April 26th when three miners and one day hand were found employed.

AMERICAN, CLAY.

This mine is located at North Springfield and is owned and operated by E. H. Merrill. J. Rees is mine boss. I inspected this mine January 5th and October 28th. It has natural ventilation. I ordered an air shaft sunk. Two miners are employed.

AKRON STONEWARE MINE

Is situated near North Springfield and is operated by the Akron Stoneware Co. William Wilson is mine boss. Visited February 21st, April 26th and October 5th. It has natural ventilation. When last visited it was found idle. Three miners are employed.

KEIHL.

This is a small mine located near Bargess' abandoned mine and is operated by Keihl & Son. Visited February 15th, March 8th, May 3d and 15th, and September 18th. Orders were given to keep search holes ten feet ahead of each room. One miner is employed.

WHITTICAR

Is a small retail mine situated near Greentown and is operated by Joseph Whitticar. On my first visit, May 1st, it was idle and full of water. On the next visit, October 23d, two miners were at work. The mine is ventilated by natural pressure.

JOHNSON SLOPE

Is a retail coal mine located near the Turkey Foot lake and is owned by the Johnson Coal Co. David R. James is superintendent and mine boss. Was visited January 3d, February 20th, April 28th, July 15th and September 15th and each time was found in fair condition. Three miners are employed.

FARMERS' SHAFT

Is a retail mine located near Krumroy and is owned and operated by Reninger & Batch, with F. H. Reninger superintendent and mine boss. I visited this mine January 6th and 17th, April 21st and October 6th. I ordered search holes drilled ahead as several abandoned mines are lying near it. On inspection I found the boilers too close to the shaft and ordered them removed to the proper distance. Four miners and one day hand are employed.

GREGG SHAFT

Is a retail mine located near Krumroy and is owned by Chas. Gregg, but is leased and operated by Williams & Morris, with Richard Morris mine boss. Was inspected January 6th and 16th, April 24th, July 15th and September 15th. It has natural ventilation. I ordered ladders placed inside of the brattice in the air chamber; this has been complied with. Two miners are employed.

TRUMBULL COUNTY.

PINCH SHAFT

Is a retail mine located north of Wood's abandoned mine near Sodom and is owned by J. F. Filer. John Kennedy is mine boss. This mine had been abandoned for five years but resumed work in September, 1892. Visited January 23d, April 7th and May 31st, 1893. On the first two visits the pumps were overpowered by the water and I could not enter the mine. When last visited all work had been suspended.

ADDISON SHAFT

Is located in Vienna township and is owned by Evan Morris. Philip Morris is superintendent and Thos. E. Thomas mine boss. Was visited November 21, 1892, January 22d, April 7th and May 31, 1893. Indications are not very favorable for a large body of coal, which is but two feet thick. Nine miners and four day hands are employed. When last visited the miners were on a strike for an advance.

FORAKER SHAFT.

This mine is located near Youngstown and is owned by Morris & Stambaugh, with D. Morris superintendent and Thos. E. Thomas mine boss. Was visited November 21, 1892, and January 23, 1893. On my first visit I found the pillars being drawn. Twenty-one miners and eight day hands are employed. On my last visit I found the mine abandoned.

KEEL RIDGE DRIFT

Is located near Coalburgh and is owned by W. B. Dunham. James Baker is mine boss. Was visited November 22d, 1892, April 6th, August 9th and October 11, 1893. The mine has been greatly improved in ventilation during the year. Seven miners are employed.

BROOKFIELD SLOPE

Is located near the State Line mine and is owned by the Sharon Iron Co. David Adams is superintendent and John McIntosh mine boss. It was visited November 22d, 1892, January 6th, April 6th and August 9th, 1893. On the three former visits pillars were being drawn. Thirty-seven miners and fifteen day hands are employed. When last visited it was found to be abandoned.

FORAKER NO. 2 SHAFT MINE.

This is a new shaft located at Churchill and is owned by Evan Morse. D. D. Morris is superintendent and Thos. E. Thomas mine boss. Was visited August 11th, September 7th and October 11th. When first visited the shaft was down seventy-one feet. On my second visit in company with Chief Inspector Haseltine, we found the shaft down 140 feet. When last visited the coal had been reached at 190 feet. It was of good quality and had a good roof. Twelve miners and six day hands are employed.

HUTCHINS' SLOPE.

This is a retail mine located at Mineral Ridge and is owned by Thos. James & Co., who is also superintendent and mine boss. It has natural ventilation. Was visited October 13th. I found one miner at work.

PEACOCK SLOPE

Is located at Mineral Ridge and when visited October 13th, was found to be abandoned.

LANIGAN SLOPE

Is a retail mine located at Mineral Ridge. Was visited October 13th when one miner was employed.

JONES' SHAFT.

This mine was located at Mineral Ridge and is operated by William Jones & Son. Was visited October 13th when two miners were found at work. This mine has natural ventilation.

OAK HILL SLOPE

Is located at Mineral Ridge and owned and operated by Edward Harris & Co. Thos. Daniels is mine boss. Was visited October 12th. Coal was reached October 3d. Three miners are employed.

DAVIS SHAFT.

This mine is located at Mineral Ridge and is owned by Davis Bros. It was inspected October 13th, when I found three miners employed after a suspension of four years. It has natural ventilation.

LIST OF

Coal, Fire-Clay and Iron Ore Mines,

ALSO

A List of the Limestone Quarries

In the State.

Giving the Names of Each, the Name and Post-Office
Address of the Owners or Operators.

COAL MINES.

LIST OF MINES EMPLOYING MORE THAN TEN MEN.

Athens County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Glen Ebon, No. 1.....	Slope.	Chicago&Ohio Coal &Car Co	Chicago, Ill.
Glen Ebon, No. 2.....	Drift.	" "	"
Hamley Run.....	Shaft.	" "	"
Carbondale (North).....	Drift.	Carbondale Coal Co.....	Chillicothe.
Carbondale (East).....	"	"	"
Phoenix, No. 1.....	Shaft.	Phoenix Coal Co.....	Toledo.
Phoenix, No. 2.....	"	"	"
No. 10.....	"	Sunday Creek Coal Co.....	Columbus.
No. 16.....	"	Courtright, Kistler & Co.....	"
No. 21.....	Drift.	C. & H. C. & I. Co.....	"
Jacksonville, No. 4.....	Shaft.	W. P. Rend & Co.....	Chicago, Ill.
Briar Ridge.....	"	"	"
Briar Hill.....	Drift.	Juniper Bros. and Lampman	Nelsonville.
Coe Hill.....	"	"	"
No. 3.....	"	"	"
No. 24.....	Shaft.	The Northern Fuel Co.....	Jacksonville.
No. 29.....	Drift.	Raybould Bros.....	Nelsonville.
Case Run.....	"	"	"
Green Briar.....	"	C. L. Poston.....	"
Poston, No. 1.....	"	"	"
Minker Run.....	"	Hocking Valley Coal Co.....	Columbus.
Sedalia.....	"	Sedalia Coal Co.....	Glouster.
Federal Valley, No. 1.....	"	J. R. Wickham.....	Wakeup.
Federal Valley, No. 2.....	"	Marietta Run Coal &Coke Co	No. 41 Dey street, New York City.
Jumbo.....	Shaft.	Lampman & Harris.....	Columbus.
Springfield, No. 2.....	Drift.	Springfield Coal & Ice Co....	Springfield.
No. 39.....	"	Spencer & Bartell.....	Nelsonville.
West Floodwood.....	"	Glenmore Coal Co.....	"
Broadwell.....	"	Federal Mining Co.....	Big Run.
East Clayton.....	"	East Clayton M'fg Co.....	Nelsonville.
McKinney.....	"	McKinney Coal Co.....	Zanesville.
Daleton.....	Shaft.	Athens Coal Co.....	Rawndale.
Black Diamond.....	Drift.	BlackDiamondCoal&CokeCo	Columbus.
Bell Run.....	"	Maple Hill Coal Co.....	Nelsonville.
Beckler.....	"	P. J. Beckler.....	Carbondale.
Old Hickory.....	Shaft.	Jacksonville Coal Co.....	Columbus.
No. 23.....	Drift.	C. & H. C. & I. C. Co.....	"
No. 25.....	"	"	"
Floodwood.....	Shaft.	O. & W. C. & I. Co.....	"

MINES EMPLOYING LESS THAN TEN MEN.

Athens County—Concluded.

Name of owner or operator.	P. O. address.
A. H. Wells.....	Nelsonville.
Henry Pugh.....	"
C. P. Evans.....	"
Ed. Holland.....	"
Lewis Weitzel.....	Buchtel.
D. T. Evans.....	Glouster.

MINES EMPLOYING MORE THAN TEN MEN.

Belmont County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Wh eling Creek, No. 1...	Drift.	Pittsburg & W. C. Coal Co...	Bridgeport.
Wheeling Creek, No. 2...	"	" " " "	"
Pittsburg, No. 1.....	"	" " " "	"
Pittsburg, No. 2.....	"	" " " "	"
Aetna-Standard.....	"	Aetna-Standard I. & S. Co...	"
McConaughy.....	"	Jas. McConaughy.....	"
Nail Mill.....	"	Bellaire Nail Works.....	Bellaire.
Bernard.....	"	Kinsey Bros.....	"
Schicks.....	"	Jas. Turnbull & Co.....	"
Pittsburg.....	"	Pittsburg Coal Co.....	"
Morgan.....	"	Morgan & Gorrell.....	"
Belmont, No. 1.....	"	Jacob Heatherington.....	"
Belmont, No. 2.....	"	Belmont Coal Co.....	"
Maple Hill.....	"	Maple Hill Coal Co.....	Barton.
Boggs.....	"	E. N. Boggs.....	"
Taggart's.....	"	Jos. Schwinder.....	"
Barnesville.....	"	S. F. Walton.....	Barnesville.
Flushing.....	"	Flushing Coal Co.....	Flushing.
Rock Hill.....	"	Rock Hill Coal Co.....	"
Black Diamond.....	"	C. Troll.....	S. Clairsville.
Echo.....	"	S. H. McGregor.....	Neffs.
Laughlin.....	"	Laughlin Nail Co.....	Martin's Ferry.
Wheeling Valley.....	"	T. C. Whitehead & Co.....	Ramage.
Captina.....	Shaft.	Captina Coal Co.....	Armstrong's Mills.
Franklin.....	Drift.	Owen Meehan.....	Stewartsville.
Kidd, No. 1.....	"	William Kidd.....	Kidd.
Kidd, No. 2.....	"	Kidd Bros.....	"
Walnut Hill.....	"	O. & P. Coal Co.....	Cleveland.
Gaylord.....	"	Gaylord Coal Co.....	Martin's Ferry.
Glen.....	Slope.	Glen Coal Co.....	Glenco.
O. & W. Va.....	Drift.	O. & W. Va. Coal Co.....	St. Clairsville.
Quaker City.....	Slope.	Cochran & Co.....	Quaker City.

MINES EMPLOYING LESS THAN TEN MEN.

Belmont County—Concluded.

Name of owner or operator.	P. O. address.
John Musgrave.....	Bellaire
Chas. Rosser.....	"
Geo Robison.....	"
Israel Pelkey.....	"
Davis & Gallagher.....	"
Resin Burch.....	"
Davey Bros.....	Bailey's Mills.
E. Fohner.....	Barnesville.
Luke Frasher.....	"
Jas. E. Kennon.....	"
Dyer & Kennon.....	"
Hellings Bros.....	Martin's Ferry.
Paxson Bros.....	"
Casper McCabe.....	"
Burns & McCabe.....	"
Keohline Bros.....	Bridgeport.
Meister Bros.....	"
Boston & Sells.....	"
Dr. Hobson.....	Flushing.
Shaver & Ambler.....	Wegee.
D. J. Cain.....	Shields.
Samuel Fielding.....	Powhatan.
Schneegg Bros.....	"
C. W. Bonar.....	"
L. H. Greene, Jr.....	"
Patrick Scahill.....	Bellaire.
Wm. Davey.....	Barnesville
D. K. Allen.....	Don.
Robert Applegarth.....	"
August Henshell.....	"
Geo. Hess.....	Steel.
Robt. Clark.....	Stewartsville.
Geo. Neff.....	Neffs.
Henry Taylor.....	Bannock.
David R. Humphreys.....	Flushing.
Moses M. Stiff.....	"
Abel Walker.....	"
A. Conrow.....	"
Joseph Bailey.....	"
Howell Bros.....	"
Clinton Bethel.....	"
Geo. Randle.....	"
L. V. Deloche.....	Bridgeport.
Geo. Jeffreys.....	Barnesville.
Geo. Miller.....	"

MINES EMPLOYING MORE THAN TEN MEN.

Carroll County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Allen	Shaft	Allen Coal Co.....	Cleveland.
Scott's, No. 1.....	Drift	Long Bros.....	Tabor.
Osborne, No. 1.....	"	Osborne Coal Co.....	Cleveland.
Hazleton, No. 1.....	"	Somers & Wainwright.....	Somerdale.
Linden.....	"	" ".....	"
No. 4.....	Slope	" ".....	"
Sherrodsville, No. 3.....	Drift	Fuller Coal Co.....	Sherrodsville.
Sandy Valley.....	"	Canton & Malvern F. B. Co.	Canton.
Malvern.....	"	Malvern Fire Clay Co.....	Malvern.
Elder.....	"	J. D. Owens Mining Co.....	Alliance.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Joe Bartholomew	Sherrodsville.
Frank Moody... ..	Carrollton.
Chas. W. Lewis.....	Algonquin.
Jas. George.....	Harlem Springs.
Henry Burrier.. ..	"
Preston Bros.....	Leesville.
Moore & McCreary.....	"
Amor Preston	"

MINES EMPLOYING MORE THAN TEN MEN.

Columbiana County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
New Shaft	Shaft.	Big Vein Coal Co.....	Cleveland.
Old Shaft.....	"	J. S. Strabley.....	Salineville.
Hayes.....	Drift.	"	"
Slope.....	Slope.	O. & P. Coal Co.....	"
Foster's	Drift.	Morrison Foster.....	Sewickley, Pa.
Empire.	"	S. S. Carnahan.....	Salineville.
Prospect Slope.....	Slope.	Filer Bros.....	East Palestine.
Pleasant Valley, No. 1....	Drift.	Sutherin Mining Co.....	Negley.
" " 2....	"	" ".....	"
" " 3....	"	" ".....	"
State Line Drift.....	"	State Line Coal Co.....	East Palestine.
" Slope	Slope.	" ".....	"
Cherry Valley, No. 2....	Drift.	Cherry Valley Iron Co.....	Leetonia.
" " 3....	Slope.	" ".....	"
1st National.....	Drift.	Jas. C. Trotter.....	Salem.
2d "	"	"	"
Quaker Valley.....	"	Quaker Valley Coal Co.....	Rogers.
Cement.....	"	Ohio Cement Co.....	New Lisbon.

MINES EMPLOYING MORE THAN TEN MEN.

Columbiana County—Concluded.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Pine Hollow.....	Slope.	Jas. Ashman.....	Salem.
Central.....	"	Sterling Coal Co.	New Lisbon.
Wheat Hill.....	Drift.	Thos. Atcheson.....	East Palestine.
Coleman	Slope.	New Lisbon Mining Co.....	New Lisbon.
Carbon Hill.....	Drift.	East Palestine Coal Co.....	East Palestine.
Saratoga, No. 1.....	"	Card & Prosser.....	New Lisbon.
Saratoga, No. 2.....	Slope.	"	"
Salem.....	Drift.	The Salem Co.....	Salem.
Farmers'	"	Brown Coal Co.....	Salineville.
Anderson.....	"	"	"
Pine Grove.....	"	Thorndon Coal Co.....	"
Standard.....	Shaft.	Standard Coal Co.....	New Lisbon.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
U. S. Fire Clay Co.....	Pittsburg.
John Jones.....	East Palestine.
Union Fire Clay & Stone Co.	Coleman.
Mrs. Elizabeth Neiheisel.....	Leetonia.
Buckeye Brick Works.....	Wellsville.
John D. Smith.....	Washingtonville.
Stouffer & Lewis.....	"
Jas. Sheen.....	Salem.
John Kirk.....	Salineville.
Nelson Burson.....	Bucks.
Thos. R. Lewis.....	Salem.
Frank Exton.....	Franklin Square.
Longanecker & Zimmerman.....	"
Godfrey N. Crawford.....	New Lisbon.
Jos. Whittaker.....	Inland.
Standard Pottery Co.	Salineville.
Enoch Jones	"
H. H. Kirk	"
C. B. Weaver	Wellsville.
M. D. Jones.....	"
Geo. Aten.....	"
Austin Hannum	East Fairfield.
Jas. W. Murphy	"
Edward Braughton.....	New Lisbon.
Philip March.....	East Liverpool.
Faulk & Bro.....	"
McDevitt & Moore.....	"
Frank M. Simkins.....	Elkton,
Peter Young.....	East Fairfield.
Sheldon Parker.....	Salem.
T. P. Francis.....	Salineville.

MINES THAT EMPLOY MORE THAN TEN MEN.

Coshocton County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Morgan Run, No. 1.....	Drift.	Morgan Run Coal Co.....	Cleveland.
Franklin No. 1.....	"	Franklin Coal & Mining Co.	Columbus.
Franklin, No. 2.....	"	"	"
Conesville, No. 1.....	"	David Davis.....	Conesville.
Hay, No. 1.....	"	William G. Hay.....	Coshocton.
Hay, No. 2.....	"	Drake Coal Co.....	Massillon.
Conley, No 1.....	"	John Conley.....	Coshocton.
Conley, No 2.. ..	"	"	"
Cassingham, No. 2.....	"	Cleve. & Coshocton Coal Co.	"
Warsaw.....	"	Pinkney Cannell Coal Co....	Warsaw.
Flint Hill.....	"	John L. Davis	Coshocton.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Joseph Robson.....	Coshocton.
Orangeville Coal Co.....	"
Thos. Lear.....	"
Chris Hudson.....	"
I. N. Bell.....	Tyrone.
Samuel Kirker	"
B. nj. C. Williams.....	West Lafayette.
Martin Miller	Roscoe.
Jas. H. Gillen.....	"

MINES EMPLOYING MORE THAN TEN MEN.

Gallia County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Carl.. ..	Drift.	Mack & Bing.....	Carlton.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
D. D. Morgan... ..	Thurman.
Thos. E. Evans.....	"
G. W. Hedges.....	"

MINES EMPLOYING MORE THAN TEN MEN.

Guernsey County

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Briar Ridge No. 2.....	Drift.	Standard Coal Co	Columbus.
Farmer's.....	Shaft.	Jas. A. Anderson.....	Byesville.
Nicholson.....	Drift.	Ohio Coal Co.....	Cambridge.
Gander Hill.....	"	"	"
Scott's.....	"	Scott's Coal and Salt Co.....	"
Guernsey	"	Guernsey Coal Co.....	"
Hartford.....	Shaft.	Camb'dge & Elyria Coal Co.	Buffalo.
Norris	Slope.	Leathernwood Crk. Coal Co.	Danford.
Trail Run.....	Shaft.	Cambge. Cons. Coal Co.....	Elyria.
Pioneer.	Slope.	Pioneer Coal Co.....	Byesville.
Forsythe	"	Forsythe Coal Co.....	Craig.
Cisco	Shaft.	Cisco Mining Co.....	Cleveland.
Valley	"	Gen. A. T. Wykoff, agt.....	Cambridge.
Mathews No. 1	Drift.	A. W. Nicholson.....	"

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Moses Sarchett.....	Cambridge.
Robins Coal Co.....	"
Jas. Wilson.....	"
Jas. Buchinham.....	"
Wilson & Burris.....	"
J. A. Smith.....	"
Eugene Scott.....	Craig.
W. E. Rose.....	Salesville.
Jacob Linton	"
D. C. McCormick.....	"
R. L. Spencer....	"

MINES EMPLOYING MORE THAN TEN MEN.

Harrison County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Messenger	Drift.	East Massillon Coal Co.....	Bowerstown.

MINES EMPLOYING LESS THAN TEN MEN

Harrison County—Concluded.

Name of owner or operator.	P. O. address
A. Weyandt.....	Bowerstown.
J. C. Jamison.....	Cadiz.
J. H. Campbell.....	"
S. L. Clemons.....	"
Wm. Hedges.....	"
John M. March.....	Freeport.
Jacob Rowland.....	"
John & Thomas McMillen.....	Deersville.
Jesse Cecil.....	"
Dickey & Erwin.....	"

MINES EMPLOYING LESS THAN TEN MEN.

Holmes County.

Name of owner or operator.	P. O. address.
Bowen Bros.....	Millersburgh.
Mast Bros.....	"
J. Horn.....	"
Chevellard & Craft.....	"
L. H. Mast.....	"
G. H. Snyder.....	"
Samuel Tishburn.....	"
Ephraim Skely.....	"
E. A. Peters.....	"
Wm. Brooks.....	"
Morgan Wheaton.....	"
Robert Neiser.....	Holmesville.
Quilin & Ling.....	Killbuck.
Garry McCullough.....	Holmesville.
Nelson Sharp.....	Welcome.
Anthony Weiss.....	"

MINES EMPLOYING MORE THAN TEN MEN.

Hocking County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
No. 19, North.....	Drift.	Col. & H. Coal and Iron Co..	Columbus.
No. 19, South.....	"	"	"
No. 29.....	Slope.	Greendale Furnace Co.....	"
Monday or No. 3.....	Drift.	Stalter & Essex.....	Monday.
Monday, New.....	"	"	"
Sand Run No. 1.....	"	Morris Coal Co.....	Cleveland.
Brush Fork No. 2.....	"	"	"
Brush Fork No. 3.....	"	"	"

MINES EMPLOYING MORE THAN TEN MEN.

Hocking County—Concluded.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Consolidated... ..	Drift.	Consolid'd Coal Mining Co...	Cincinnati.
Black Diamond.....	"	Haydenville Min'g&M'f'gCo.	Columbus.
Buckeye No. 1.....	"	Buckeye Coal Co.....	Nelsonville.
Buckeye No. 2.....	"	"	"
New Pittsburg No. 6.....	"	New Pittsburg Coal Co.....	Columbus.
New Pittsburg No. 7.....	"	"	"
New Pittsburg No. 8.....	"	"	"
New Pittsburg No. 9.....	"	"	"
Kittanning	"	Raccoon Mining Co.....	Kittanning.
Lost Run No. 1.....	"	Lost Run Coal Co	Nelsonville.
Lost Run No. 2.....	"	"	"
Lost Run No. 3.....	"	"	"
Somers.....	"	Somers Coal Co.....	Columbus.
Coalgate	"	"	"

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner and operator.	P. O. address.
J. F. Shuler.....	New Longstreths.
Samuel Mitchel	Carbon Hill.
J. M. Lama.....	Nelsonville.
Beattie Bros. Coal Co.....	"
John Charton.....	Carbon Hill.
Cohagen & Archaner.....	Haydenville.

MINES EMPLOYING MORE THAN TEN MEN.

Jackson County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Superior No. 1.....	Shaft.	Superior Coal Co.....	Wellston.
Superior No. 2.....	"	"	"
Superior No. 3.....	"	"	"
Superior No. 4	"	"	"
Superior No. 5.....	Drift.	"	"
Superior No. 6.....	Slope.	"	"
Ohio or Indiana.....	"	Ohio Coal Co.....	Jackson.
Star No. 3	"	Star Furnace Co.....	"
Hurd Shaft.....	Shaft.	Hurd Coal Co.....	Cincinnati.
Hurd Slope.....	Slope.	"	"
Chapman.....	Drift.	Chapman Coal Co.....	Jackson.
Grace	Shaft.	"	"
Springfield.....	Drift.	"	"
Keystone	"	"	"

MINES EMPLOYING MORE THAN TEN MEN.

Jackson County--Concluded.

Name of mine.	Kind.	Name of owner or operator.	P. O address.
Benton.....	Slope.	Chapman Coal Co.....	Jackson.
Worth	Drift.	"	"
Emma.....	Shaft.	Emma Coal Co.....	"
McKittrick.....	Slope	McKittrick Bros.....	"
Standard	Shaft.	Standard Coal Co.....	"
Jones No. 1.....	"	Jones Coal Co.....	"
Jones No. 2.....	Slope.	"	"
Price.....	Drift.	Price Bros.....	"
Ada No. 1.....	Shaft.	Ada Coal Co.....	"
Ada No. 2.....	"	"	"
Forest	Drift.	Jackson Hill Coal Co.....	"
Huron.....	Shaft.	Globe Iron Co.....	"
Diamond.....	Drift.	Diamond Coal Co.....	"
Comet	Shaft.	Comet Coal Co.....	Wellston.
Wellston No. 1.....	"	Wellston Coal Co.....	"
Wellston No. 2.....	"	"	"
Wellston No. 3.....	"	"	"
Eliza.....	"	Eliza Coal Co	"
Hipple	Drift.	Hipple Coal Co.....	Coalton.
Eclipse No. 1.....	"	Phoenix Coal Co.....	Jackson:
Eclipse No. 2.....	"	"	"
Milton.....	Shaft.	Milton Coal Co.....	Wellston.
Fluhart No. 1.....	"	Fluhart Coal Co.....	"
Fluhart No. 2.....	"	"	"
Fluhart No. 3.....	"	"	"
Coalton Coal Co. No. 3 ...	Drift.	Coalton Coal Co.....	Coalton.
Northern.....	Shaft.	Jones & Morgan.....	Jackson.
No. 3.....	Slope.	"	"
Tropic.....	Drift.	Tropic Iron Co.....	"
Price.....	"	Gosline & Barbour.....	Toledo.
Buckeye.....	"	Buckeye Coal Co.....	Coalton.
Tom Corwin No. 1.....	Shaft.	Tom Corwin Coal Co.....	Glen Roy.
Tom Corwin No. 2.....	"	"	"
Wainwright	"	Wainwright Coal Co.....	Wellston.
Central ...	Slope.	Central Mining Co.....	Jackson.
Riverton.....	Drift.	Riverton Coal Co.....	Riverton.
Glen Nell.....	Slope.	Phoenix Coal Co.....	Jackson.
Jackson Co. Coal Co.....	Shaft.	Jackson Co. Coal Co.....	"
Alma	"	Alma Coal Co.....	Glen Roy.
Poling No. 2... ..	Drift.	Poling Coal Co.....	Dayton.
Price, New.....	"	J. E. Price.....	Jackson.
Springfield No. 2.. ..	"	Chapman Coal Co.....	"
Victor No. 1.....	"	Gosline & Barbour.....	Toledo.

MINES EMPLOYING LESS THAN TEN MEN.

Jackson County—Concluded.

Name of owner or operator.	P. O. address.
Thomas Rhodes.....	Coalton.
Daniel Shock.....	"
Alex Oman.....	"
William A. Jones.....	"
Brown & Williams.....	"
Ætna Coal Co.....	Jackson.
Oak Hill Fire Brick & Coal Co.....	Oak Hill.
J. D. Thomas.....	"
J. I. Jones.....	"
Jefferson Furnace Co.....	"
R. K. Brady.....	Jackson.
John Law.....	"
Mark Landrum.....	"
Andrew Law.....	"
John W. Simpson.....	"
William C. Chambers.....	"
Isaac McGhee.....	Chapman.
Clare, Duduitt & Co.....	Remple.
John S. Evans.....	Thurman.

MINES EMPLOYING MORE THAN TEN MEN.

Jefferson County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Dillon No. 1.....	Drift.	W., L. E. & Pittsb'g Coal Co.	Dillonvale.
Dillon No. 2.....	"	"	"
Laurelton.....	"	"	"
Long Run No. 1.....	"	"	"
Long Run No. 2.....	"	"	"
High Shaft.....	Shaft.	Steubenville Coal&Min'g Co.	Steubenville.
Brilliant.....	"	Brilliant Steel & Iron Co.....	Brilliant.
LaGrange.....	Drift.	A. Gilchrist.....	"
Nebo.....	"	L. P. George & Co.....	Bergholz.
Oak Grove.....	"	Co-operative Coal Mining Co.	Alliance.
Forest City.....	Shaft.	John Francy & Sons.....	Toronto.
Kelley.....	Drift.	Kelley Coal & Coke Co.....	Portland Station.
Strip Vein.....	"	Wallace, Banfield & Co.....	Irondale.
Bustard.....	Shaft.	Jefferson Coal Co.....	Steubenville.
Calumet.....	Drift.	Calumet Fire Clay Co.....	Calumet.
Diamond No. 2.....	"	S. N. & W. G. McCullough...	Linton.

MINES EMPLOYING LESS THAN TEN MEN.

Jefferson County—Concluded.

Name of owner or operator.	P. O. address.
Curry & Kirk.....	Bergholz.
O. V. Fire Clay Co.....	Toronto.
Wallace & Sons.....	"
Gt. Western Fire Clay Co.....	"
Empire Fire Clay Co.....	Empire.
Markle Fire Clay Co.....	Markle.
G. A. Lupton & Co.....	Mt. Pleasant.
William Lacey.....	Irondale.
Wallace Mining & Manufacturing Co.....	Hammondsville.
Stratton, Hinkle & Stratton..	Empire.
Congo Fire Clay Co.....	"
Harlen Ong.....	Wintersville.
J. D. Tweed & Son	Steubenville.
Asa Pmarr.....	"
John Bates	"
Henry Wilson.....	"
Deets & Black.....	Richmond.
Hout Bros.....	"
J. C. Riley.....	"
P. Conner.....	Calumet.
Riverside Iron Works.....	Steubenville.
Morgan & McBane	Irondale.
D. O. Findlay.....	Jeddo.
E. D. Cornon.....	"

MINES EMPLOYING MORE THAN TEN MEN.

Lawrence County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Belfont.....	Drift.	Belfont Iron Works	Vesuvius.
Kelley.....	"	Kelley Nail & Iron Co.....	Ironton.
Lawrence Furnace.....	"	Lawrence Furnace Co.....	"
New Castle.....	"	Means, Kyle & Co.....	Hanging Rock.
Old Mill.....	"	Pirrung & Son.....	Vesuvius.
Willard & Creighton No.2	"	E. B. Willard & Co.....	Steece.

MINES EMPLOYING LESS THAN TEN MEN.

Lawrence County—Concluded.

Name of owner or operator.	P. O. address.
May & May	Culbertson.
Griswell & Son.....	Ironton.
J. A. Blackwell	"
Thos. Miller	"
Jos. Gilland	"
J. W. Phillips.....	"
Philip Casey	Coal Grove.
John White.....	Forestdale.
McGugin & Co.....	Olive Furnace.
Ætna Iron Works	Ironton.
Dr. W. F. Wilson.....	"
John H. Johnson	"
Edward Atkins	Forestdale.
Creighton L. Steed.....	"
Forestdale Fire Brick & Tile Works.....	Ashland, Ky.
Thos. W. Kemp.....	Ironton.

MINES EMPLOYING MORE THAN TEN MEN.

Mahoning County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Beloit	Shaft.	Youngstown Paving Brk. Co	Youngstown.
Poland.....	Slope.	Poland Coal Co	"
Tippecanoe.....	Shaft.	Foster Coal Co.....	"
Witch Hazel.....	"	Witch Hazel Coal Co	"
Fair View	Slope.	Fair View Mining Co.....	Washingtonville.
National, North	Drift.	The Walters & Ferris Coal Co.	Youngstown.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Thos. Tyrell.....	Briar Hill.
David Coy.....	Salem.
Godward & Sons.	"
Robert Auld.....	"
Stephen Stone	"
J. C. Shepherd....	"
Joseph Lippiatt	"
Thos. Leipper.....	"
Homer Dunn	"
Barber Bros.....	Beloit.
Ralph Urmson	"
Godward Bros.....	"
Daniels & Watkins	Mineral Ridge.
Henry L. Bandy	Alliance.
Garfield Mining & Manufacturing Co.....	Garfield.
C. C. Buck.....	West Austintown.
David Little.....	Poland.
Solomon Paulin.....	North Lima.
Peacock & Wilcox.....	"
J. F. Waters	E. Lewistown.
Greenford F. C. Co	Greenford.

MINES EMPLOYING MORE THAN TEN MEN.

Medina County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Eldorado	Shaft.	Card, Barrett & Co.....	Cleveland.
Colliers	Slope.	W. B. Coleman	Wadsworth.
Rasor	"	"	"
Excelsior	"	Excelsior Coal Co	Akron.
Stony Ridge.....	"	Akron Coal Co.....	Wadsworth.
Hutson Run	"	Brewster Coal Co.....	Akron.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
A. B. Weinsheimer	Wadsworth.
J. & T. Birkbeck.....	"
Cunningham Coal Co	"
Frank Reichard.....	Western Star.

MINES EMPLOYING MORE THAN TEN MEN.

Meigs County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Nail Mill.....	Drift.	King, Gilbert & Warner	Columbus.
Minersville.....	"	Minersville Coal Co	Minersville.
Peacock	"	Peacock Coal Co	Pomeroy.
Dabney	"	Frank Hess.....	"
Coal Ridge.....	"	Coal Ridge Coal & Salt Co...	"
Charter Oak.....	"	Charter Oak Fuel Co	"
Rolling Mill.....	"	Martin Ebersbach.....	"
Williams	"	John E. Williams.....	"
King.....	"	T. H. King.....	Middleport.
Excelsior.....	"	B Koehler.....	Pomeroy.
Syracuse Shaft.....	Shaft.	Syracuse Coal & Salt Co.....	Syracuse.
Syracuse Slope.....	Slope.	"	"
Silver Run	Drift.	William Russell.....	Middleport.
Zahl	Drift.	Zahl Salt Furnace Co.....	Syracuse.
Antiquity	Shaft.	Ohio Coal Co.....	Pomeroy.

MINES EMPLOYING LESS THAN TEN MEN.

Meigs County—Concluded.

Name of owner or operator.	P. O. address.
Thos. D. Scott.....	Middleport.
John B. Lindsay.....	"
John Priode.....	"
Kauff Bros.....	"
Walter S. Malone.....	Pomeroy.
John Michael.....	Middleport.
Arnold & Stephenson.....	Minersville.
Eli Roush & Son.....	"
John Hitchins.....	"
John J. Williams.....	"

MINES EMPLOYING MORE THAN TEN MEN.

Muskingum County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Princess.....	Drift.	McCoy & Thompson.....	Zanesville.
Brush Creek No. 3.....	"	Col. & Brush Creek Coal Co.	Columbus.
Franklin.....	"	Weaver, Getz & Co.....	Chicago.
Salt Run.....	"	Christie Coal Co.....	Cleveland.
Fisher's.....	"	Michael Fisher.....	Zanesville.
Garrett.....	"	Joseph Garrett.....	Philo.
Neff's.....	"	S. Neff.....	"
Lehigh.....	"	Davis & Cassingham.....	Conesville.
Diamond.....	"	"	"
Blue Rock.....	"	Blue Rock Coal Co.....	Cedar Run.
Buckeye.....	"	Morgan & Tandy.....	Zanesville.
East Hill.....	"	Morrison & McCanaher.	Stovertown.
Ballou.....	"	Orrin Ballou.....	Zanesville.
Oak Grove.....	"	O. F. McKinney.....	"

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Bridwell & Barton.....	Zanesville.
Lewis Harper.....	"
Geo. H. Harper.....	"
Eben Harper.....	"
Geo. M. Lebew.....	"
Joseph Miles.....	"
Newton C. Smith.....	"
John Morgan.....	"
Isaac Melvin.....	"
J. W. Foutch.....	"
William A. Werner.....	"

MINES EMPLOYING LESS THAN TEN MEN.

Muskingum County—Concluded.

Name of owner or operator.	P. O. address.
Chas. L. Schultz.....	Zanesville.
A. Z. Sealover.....	"
Jas. C. Orr.....	Philo.
J. G. Baughman.....	Roseville.
Daniel Hoch.....	Philo.
J. R. Greiner.....	Zanesville.
August German.....	"
A. H. Hoff.....	"
J. A. Detenbeck.....	"
William Uphold.....	"
N. F. Swank.....	"
John B. Pansler.....	"
H. P. Miller.....	"
Ira Severance.....	"
William L. Combs.....	"
William Cornell.....	Otsego.
W. R. Buker.....	"
G. F. Riney.....	"
H. Norman.....	"
W. F. Trimble.....	"
Jno. F. Smith.....	"
A. W. Smith.....	"
John G. Jackson.....	"
L. C. Hamilton.....	"
M. W. Campbell.....	Hopewell.
S. R. Porter.....	"
Wm. Dick.....	"
S. Varner.....	"
Nelson Shiplet.....	"
Porter Bros.....	Coaldale.
Frank E. Dick.....	"
Jos. Porter.....	"
Geo. L. Starkey.....	"
John Crossland.....	Ellis.
Ewing Fletcher.....	Dresden.
J. S. Copeland.....	"
Henry McCain.....	"
Jos. Varley.....	"
Milton Griffin.....	"
Samuel Stuller.....	"
Robert Jamison.....	"
H. G. Tomlinson.....	Fazeysburgh.
Jas. A. Knight.....	"
T. J. Buchanan.....	"
J. L. Granger.....	Zanesville.
J. T. Bridwell.....	"
Jesse Germin.....	Coaldale.
John Bagent.....	Fazeysburgh.
R. W. Boggs.....	Zanesville.
Thos. Potts.....	"
Theo. Deitz.....	"
Michael McNulty.....	"

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MINE^s EMPLOYING LESS THAN TEN MEN.

Muskingum County—Concluded.

Name of owner or operator.	P. O. address.
Andrew Hagenhouse.....	Zanesville.
John S. Marcellus.....	"
Abram Emery.....	"
N. T. Grant.....	"
Edward Holdsworth.....	"
John German.....	"
H. T. Ferrell.....	Dresden.
G. W. Brown.....	Roseville.
Isaac Sellars..	Hopewell.

MINES EMPLOYING LESS THAN TEN MEN.

Monroe County.

Name of owner or operator.	P. O. address.
B. F. Gibbins.....	Woodsfield.
William Morris.....	"
J. W. Bruce.....	Aitch.
Samuel Howell.....	"
S. R. Carrollton.....	Jerusalem.

MINES EMPLOYING MORE THAN TEN MEN.

Morgan County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Rose.....	Drift.	Carding Bros.....	Rose Farm.

MINES EMPLOYING MORE THAN TEN MEN.

Noble County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Macksburgh.....	Drift.	Ohio Coal Co.....	Cleveland.

MINES EMPLOYING LESS THAN TEN MEN.

Noble County—Concluded.

Name of owner or operator.	P. O. address.
Oakley & Sloan.....	Stafford.
David Vance.....	"
Day & Day.....	Flag.
D. R. Curtis.....	"
William S. Bonar.....	"
W. W. McClintock.....	Summerfield.
D. O. Young.....	"
N. M. Meek.....	"
F. S. Beamer.....	"
Crawford & Bowen.....	Mt. Ephraim.
D. L. Shafer.....	"
Frank A. Coughill.....	Cumberland.
H. C. Hunter.....	"
Ezra Davis.....	Caldwell.
C. I. McGee.....	"
R. J. Metheny.....	Enoch.
Lewis M. Bryan.....	Perryopolis.
E. P. Sullivan.....	Summerfield.
M. B. Hunter.....	Cumberland.

MINES EMPLOYING MORE THAN TEN MEN.

Perry County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
No. 3.....	Drift.	C. & H. C. & I. Co.....	Columbus.
No. 5.....	"	" ".....	"
No. 9.....	"	" ".....	"
No. 13.....	"	" ".....	"
No. 47.....	"	" ".....	"
No. 49.....	"	" ".....	"
No. 8.....	Shaft.	Sunday Creek Coal Co.....	"
No. 19.....	"	" ".....	"
No. 21.....	Drift.	" ".....	"
Union, North.....	"	Standard Coal Co.....	"
Rend's, No. 3.....	Shaft.	W. P. Rend & Co.....	Chicago.
XX.....	Drift.	H. D. Turney & Co.....	Columbus.
Eastern.....	Slope.	Col. & Eastern Coal Co.....	"
Manley or Furnace.....	Drift.	Gosline & Barbour.....	Toledo.
Shawnee Valley.....	"	Shawnee Valley Coal Co.....	Shawnee.
Iron Pt., No. 2.....	"	Opperman & McGrew.....	"
Upson, No. 1.....	"	Upson Coal Co.....	"
Upson, No. 2.....	"	".....	"
Hemlock.....	Slope.	Col. & Shawnee Coal Co.....	Hemlock.
Black Diamond.....	Drift.	Ohio Coal Co.....	New Straitsville.
Hazleton.....	"	Spencer & Hazleton.....	"
Chicago.....	"	Cratley Coal Co.....	Redfield.
Green Hollow.....	"	".....	"
Standard.....	"	Standard Coal Co.....	Columbus.

MINES EMPLOYING MORE THAN TEN MEN.

Perry County—Concluded.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Beech Grove, East.....	Drift.	I. H. Jones.....	McLuney.
Beech Grove, West	"	"	"
Horn, No. 1.....	"	Tague Bros. & Co	Crooksville.
Block or No. 2.....	"	Tague & Bennett.....	McLuney.
Hamburgh.	"	Hamburgh Coal Co.....	Nelsonville.
Congo	Shaft.	Congo Mining Co	Columbus.
New Crescent.....	Drift.	New Crescent Mining Co....	Roseville.
Star.....	"	Star Coal Co.....	Crooksville.
XX Furnace.....	"	Bailey Coal Co.....	Shawnee.
Davis.....	"	Davis Mining Co.....	Redfield.
Hart.....	"	Crooksville Coal & Sand Co.	Crooksville.
Zanesville Coal Co.....	"	Zanesville Coal Co... ..	Zanesville.
Lyonsdale	"	M. Meenan.....	Lyonsdale.
Black Bird.....	"	Young Coal Co.	Maholm.
Co-operative.....	"	Martin & Roan.....	New Straitsville.
No. 51.....	"	Calvin Essex.....	"
Simons'	"	A. P. Simons.....	Redfield.
Dickson.....	"	J. C. Hamilton	Shawnee.
Furnace No. 2.....	"	N. Y. & Penn. C. & I. Co	"

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Crawford, Gaver Bros. & Co.....	McCuneville.
W D. Hamilton.....	Zanesville.
John Green.....	Junction City.
William Green.....	Somerset.
Thos. Green.....	"
O. J. Archer.....	"
Perry Randolph.....	"
J. Edgar Fink.....	"
L. Flowers.....	"
John Butler.....	New Lexington.
Bristol Coal Co.	Newark.
Taylor Coal & Mining Co.....	"
A. J. Yost.....	Somerset.
O'Connor & Friel.....	New Straitsville.
Thos. A. Wright.....	New Lexington.
Wm. J. Price.....	Zanesville.

MINES EMPLOYING MORE THAN TEN MEN.

Portage County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Hutson No. 1.....	Shaft.	Hutson Coal Co... ..	Lloyd.
Hutson No. 2.....	"	"	"
Filer's New Shaft.....	"	Filer Coal Co.....	Diamond.
Scott's	"	Scott's Coal Co.....	Youngstown.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Wilson, Thompson & Erb.....	Palmyra.

MINES EMPLOYING LESS THAN TEN MEN.

Scioto County.

Name of owner or operator.	P. O. address.
Means, Kyle & Co.....	Gervais.
A. T. Holcomb.....	Scioto Furnace.

MINES EMPLOYING MORE THAN TEN MEN.

Stark County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Wade	Drift.	Wade Coal Co.....	Cleveland.
Clover Hill.....	Shaft.	Fox Lake Coal Co.....	"
Hadley, No. 4.....	Drift.	Osnaburg Mining Co.....	"
Lake Erie, No. 1.....	"	Mon'gahela & L. E. Coal Co.	Osnaburgh.
Orchard Hill.....	"	Diebold Fire Brick Co.....	Canton.
Anderson	Shaft.	Howell's Coal Co.....	Massillon.
Millport.....	"	Millport Coal Co.....	"
West Massillon, No. 2....	"	West Massillon Coal Co.....	"
Willow Spring.....	Drift.	Ridgeway, Burton & Co.....	"
Hern Brook.	Shaft.	" "	"
South Ma-sillon.....	"	" "	"
North Massillon.....	"	" "	"
Massillon City.....	"	Massillon City Coal Co.....	"
Elm Run.....	"	Elm Run Coal Co.....	"
Minglewood Shaft.....	"	Jas. Mullens.....	Wooster.
Minglewood Slope.....	Slope.	"	"
Summit Hill.....	Drift.	L. E. Smith.....	Greentown.
Taylor	"	W. A. Taylor.....	Churchill.
Forest	Shaft.	Forrest Coal Co.....	Massillon.
Davis.....	"	Evan S. Davis.....	Alliance.
Upper Pigeon Run.....	"	Upper Pigeon Run Coal Co..	Cleveland.
Rose Hill.....	Drift.	Howel's Coal Co.....	Massillon.
Miller Hill.....	Shaft.	"	"
Warwick ..	"	Warwick Coal Co.....	"

MINES EMPLOYING LESS THAN TEN MEN.

Stark County—Continued.

Name of owner or operator.	P. O. address.
Albert Smith.....	Osnaburg.
J. M. Sansser.....	"
Frank Bolinger.....	"
Michael Miller.....	"
E. Rice.....	"
B. F. Meiser.....	"
Eli B. Darr.....	North Industry.
Daniel Richards.....	"
H. B. Hossler.....	New Berlin.
Pfester & Unger.....	"
H. H. Beasecker & Son.....	"
Canton Stoneware Co.....	Canton.
J. S. Davis.....	"
Chaffin & Sponseiler.....	Waco.
Kenbel & Mathias..	Louisville.
Remmark Bros.....	Canal Fulton.
John Moore.....	Crystal Springs.
Anthony Kramer.....	Waco.
Frank English.....	"
Wm. Kiezmilller.....	"
Jacob Schlemmer.....	"
Jesse B. Miller.....	"
John C. Mark.....	Osnaburg.
Herman Myers.....	"
Frank Bowen.....	"
Brown & Meiser.....	"
Hassler & Meiser.....	"
William Dehoff.....	Mapleton.
Geo. Cartwright.....	Paris.
Holl Bros.....	New Berlin.
Richard Warburton.....	"
Mattie & Mercer.....	Mapleton.
H. M. Martin.....	"
Louis Daum.....	"
William Somerville.....	New Franklin.
L. R. Tressel.....	Canton.
Canton & Osnaburg Fire Brick Co.....	"
J. J. Robertson.....	Alliance.
C. S. Moggs.....	Paris.
Jeremiah Hayman.....	Myers Station.
Waynesburg Brick & Clay Co.....	Waynesburg.
Jas. H. Ross.....	"
B. F. Reed.....	North Industry.
H. Tappin.....	"
Wm. Slutz.....	"
Wm. Reibenstein.....	Osnaburg.
Robert Thirlwall.....	"
George Battershell.....	Alliance.
Geo. Minser.....	Waynesburg.
V. T. Nordick..	Marchand.
John Montague.....	Howenstine.
J. W. Shaw.....	Minerva.
Hoover & Simmons.....	Canal Fulton.

MINES EMPLOYING LESS THAN TEN MEN.

Stark County—Concluded.

Name of owner or operator.	P. O. address.
Christian Warstler.....	Canton.
John Ricksecker.....	Navarre.
Levi Hair.....	"
Gregory & Weiss.....	Magnolia.
Champion Tile & Brick Works.....	Louisville.
W. H. Sheckler.....	Alliance.
Adam Bolinger.....	North Industry.

MINES EMPLOYING MORE THAN TEN MEN.

Summit County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Lake View, No. 2	Shaft	Lake View Coal Co.....	Akron.
Turkey Foot.....	"	Brewster Coal Co.....	"
Pleasant View.....	"	Falls Coal Co.....	Cuyahoga Falls.

MINES EMPLOYING LESS THAN TEN MEN.

Williams & Morris.....	Thomastown.
Batch & Reninger.....	Krumroy.
Johnson Coal Co.....	Reservoir.
H. Thomas & Co.....	Cuyahoga Falls.
Keihl & Son.....	Johnsons Corners
David P. Davis.....	Western Star.
South End Coal Co.....	Tallmage.
Joseph Whitticar.....	In and
Frank Reichard.....	Western Star.

MINES EMPLOYING MORE THAN TEN MEN.

Trumbull County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Keel Ridge.....	Drift.	Keel Ridge Coal Co	Sharon, Pa.
Addison.....	Shaft.	Evan Morris.....	Girard.

MINES EMPLOYING LESS THAN TEN MEN.

Trumbull County—Concluded

Name of owner or operator.	P. O. address.
John F. Filer.....	Alliance.
Davis Bros....	Mineral Ridge.
Jones & Blant.....	" "
James & Ague.....	" "
Prodger & Powers.....	" "
Edwards, Harris & Co.....	" "
Covne Ave. Coal Co.....	Hubbard.
Wolfe, Mathews & Ebinger.....	"

MINES EMPLOYING MORE THAN TEN MEN.

Tuscarawas County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Pike Run No. 1.....	Drift.	Tuscarawas Valley Coal Co...	Bridgeport.
Huff's Run... ..	"	Ridgeway, Burton & Co.....	Massillon.
Somerdale, East Side.....	"	Somerdale Coal Co.....	Somerdale.
Somerdale, North Side...	"	" "	"
Somerdale, No. 2.....	"	" "	"
Acme.....	"	Ohio Coal Co.....	Mineral Point.
Mineral Ridge.....	"	" "	"
Goshen No. 1.....	"	Goshen Coal Co.....	New Phil'd'lph'a.
Goshen No. 2.....	"	" "	" "
Eagle Hill.....	"	William R. Jones.....	Zoar Station.
Brock Hill.....	"	Brock Hill Coal Co.....	New Phil'd'lph'a.
Odbert's No. 1.....	"	H. S. Odbert Coal Co.....	Cleveland.
Odbert's No. 2.....	"	" "	"
Odbert's No. 3.....	"	" "	"
Monarch.....	"	Monarch Coal Co.....	Dennison.
Trenton.....	"	H. C. Minnich.....	Tuscarawas.
Ridgeway Ore.....	"	Ridgeway, Burton & Co.....	Massillon.
Mory Ridge.....	"	C. J. Nungesser.....	Beidler.
Gold Dust	"	E Van Kirk.....	Mineral Point.
Mason.....	"	Mason Bros.....	Canal Dover.
Maple Grove	"	G. E. Schwinder & Bro.....	Tuscarawas.
South Side.....	"	C. E. Holden.....	Mineral Point.
Tunnel Slope.....	Slope.	Brick Bros.....	" "

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
J. A. Wagner.....	Canal Dover.
Crown Fire Clay Co... ..	" "
J. A. Horn.....	" "
Moull & Reed.....	" "

MINES EMPLOYING LESS THAN TEN MEN.

Tuscarawas County—Concluded.

Name of owner or operator.	P. O. address.
Peter Wendling.....	Canal Dover.
Perry Storksedale.....	" "
Osmond Salmon	" "
William Krants.....	Strasburgh.
Uhrichsville Fire Clay Co.....	Uhrichsville.
Diamond Fire Clay Co.....	"
Buckeye Fire Clay Co.....	"
W. A. Shipton.....	"
David Dunlavey.....	"
Howell Williams.....	"
John B. Wilcoxon.....	"
Eli Hill.....	Dennison.
Wm. Stanart.....	"
Crocker & Todd.....	"
John Oliver.....	"
Irish Run Coal Co.....	"
Skeels & Roby.....	"
J. M. Smith.....	Uhrichsville.
Steward English.....	Blake's Mills.
Swihart & Sherer.....	" "
E. M. Stonebrook.....	" "
G. W. Wheeland.....	" "
Henry Miller.....	" "
Geo. W. Matthias.....	New Phil'd'lph'a.
Ernest Haneter.....	Strasburgh.
Nicholas Hert.....	Tuscarawas.
American Fire Brick Co.....	Mineral Point.
The Zoar Society.....	Zoar.
Harvey Gibbs.....	Canal Dover.
Reeves Iron Co.....	" "
Wm. Vout.....	" "
Jos. T. Patton.....	" "
Edward Minne.....	" "
Geo. Dunn & Son.....	New Phil'd'lph'a.
Edward Burtscher.....	" "
John Campbell.....	" "
Simon F. Hensel.....	" "
Oliver Bros.....	Barn Hill.
B. F. Beans	" "
Mrs. Catharine Ritson.....	Laurelton.
Jacob Huston.....	Uhrichsville.
John M. Smith.....	"
L. P. McKinley.....	"
Jake Lonhard.....	Newcomerstown.
W. W. Norris.....	"
Laughead & Tufford.....	"
McClelland Wardell.....	Strasburgh.
Nathan Bixler	Bolivar.
Jas. Conner.....	Baltic.

MINES EMPLOYING MORE THAN TEN MEN.
Vinton County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Elko.....	Shaft.	Maderia Coal Co	Chillicothe.
New No. 4.....	Drift.	Zaleski Co.....	Zaleski.
No. 6.....	"	"	"
Star No. 2.....	"	Keck & Edwards.....	Hawks.
Ingham's.....	"	William Ingham.....	Kings.
Raccoon	"	John L. Lawler	Minerton.
Hanging Rock.....	Shaft.	Hanging Rock Coal Co.....	Jackson.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Chas. Brown	McArthur.
Wm. Smith	"
Henry Robinet.....	"
Gillman & Gold.....	"
J. H. Pilcher.....	"
Enos T. Winters.....	"
Benj. Newlin	"
Oscar Gibbs, Sr.....	Zaleski.
Elmer Chaffin.....	"
John Blore	Radcliff.
Hamden Furnace Co.....	Hamden Junc.
Devault & Sons.....	Minerton.

MINES EMPLOYING MORE THAN TEN MEN.
Washington County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Felix	Slope.	W. S. Keever & Son.....	Coal Run.



MINES EMPLOYING MORE THAN TEN MEN.
Wayne County.

Name of mine.	Kind.	Name of owner or operator.	P. O. address.
Clinton, or No. 2.....	Shaft.	Fox Lake Coal Co.....	Cleveland.
Mobile	"	John Santock.....	Doylestown.

MINES EMPLOYING LESS THAN TEN MEN.

Name of owner or operator.	P. O. address.
Nelson Kutz	Burton City.
Peter Larson	"
Seiberling, Miller & Co	Doylestown.
J. H. Morgan.....	Fredericksburgh.

FIRE CLAY MINES OF OHIO.

Name of firm.	P. O. address.
<i>Athens County.</i>	
Nelsonville Sewer-Pipe Co.....	Nelsonville.
East Clayton Manufacturing Co.....	"
<i>Belmont County.</i>	
Geo. O. Robinson.....	Bellaire.
<i>Carroll County.</i>	
Canton & Malvern Fire Brick and Paving Co.....	Canton.
Malvern Fire Clay Co.....	Malvern.
Minerva Paving Brick Co.....	Minerva.
The Myers-Hartfield Clay Co.	Malvern.
<i>Columbiana County.</i>	
Union Fire Clay & Stone Co.....	Coleman.
U. S. Fire Clay Co.....	New Lisbon.
The Keystone Fire Clay Co	"
The Knowles, Taylor & Anderson Co.....	East Liverpool.
The Globe Pottery Co.....	"
McDevitt & Moore.....	"
Standard Pottery Co.....	Salineville.
The Furnace Fire Clay Co.....	"
N. U. Walker's Clay Manufacturing Co.....	Walker's.
State Line Fire Brick Co.....	East Palestine.
S. Y. Howell.....	Salem.  
Buckeye Brick Works.....	Wellsville.
The Vulcan Fire Clay Co.....	"
John Lythe & Sons	"
<i>Hocking County.</i>	
Haydenville Mining & Manufacturing Co.....	Haydenville.
The Columbus Brick & T. Co.....	Union Furnace.
Parley Phelps	Gore.
<i>Holmes County.</i>	
Henry Snyder	Millersburgh.
<i>Jackson County.</i>	
Oak Hill Fire Brick Co.....	Oak Hill.
Ætna Fire Brick Co.....	"
<i>Jefferson County.</i>	
Nonesuch Fire Clay Co.....	Empire.
Congo Fire Clay Co.....	"
Empire Fire Clay Co.....	"
Minor Fire Clay Co.....	"
Freeman Fire Clay Co.....	Freeman's Station
Excelsior Fire Clay Co.....	Calumet.
Calumet Fire Clay Co.....	"
Ohio Valley Fire Clay Co.....	Toronto.
Gt. Western Fire Clay Co.....	"

FIRE CLAY MINES OF OHIO—Continued.

Name of firm.	P. O. address.
<i>Jefferson County—Concluded.</i>	
Forest City Fire Clay Co.....	Toronto.
Toronto Fire Clay Co.....	"
W. H. Wallace & Sons.....	Hammondsville.
William Lacey.....	Cleveland.
<i>Lawrence County.</i>	
Thos. Kemp.....	Ironton.
Forestdale Brick and Tile Works.....	Ashland, Ky.
Means, Kyle & Co.....	Hanging Rock.
E. B. Willard & Co.....	Steece.
<i>Mahoning County.</i>	
Youngstown Paving Brick Co.....	Beloit.
Greenford Fire Clay Co.....	Greenford.
Salem-Garfield Mfg. Co.....	Salem.
Robert Auld.....	"
<i>Muskingum County.</i>	
The T. B. Townsend Brick & Contracting Co.....	Zanesville.
W. B. Harris & Bros.....	"
American Encaustic Tiling Co.....	"
Oakland Pressed Brick Co.....	"
The A. O. Jones Brick and Terra Cotta Co.....	"
E. M. Ayers.....	"
The J. B. Owens Pottery Co.....	"
Harris Bros. & Lane.....	"
The J. Downerd & Son Co.....	"
John W. King.....	"
Abram Emery.....	"
Clarence Carter.....	Roseville.
South Zanesville Sewer-pipe and Brick Co.....	South Zanesville
<i>Noble County.</i>	
B. F. Gibbins.....	Woodsfield.
<i>Perry County.</i>	
Burley, Winter & Brown.....	Crooksville.
<i>Scioto County.</i>	
Scioto Star Fire Brick Works.....	Portsmouth.
Portsmouth Paving Brick Co..	"
Scioto Fire Brick Co.....	Sciotoville.
Webster Fire Brick Co.....	South Webster.
R. H. Cook & Son.....	Lilly.
<i>Stark County.</i>	
Waynesburg Brick & Clay Co.....	Waynesburgh.
Holloway Paving Brick Co..	Canton.
Canton Standard Brick Co.....	North Industry.
Rev. J. H. Harrier	"

FIRE CLAY MINES OF OHIO—Concluded.

Name of firm.	P. O. address.
<i>Stark County—Concluded.</i>	
The Royal Brick Co.....	Canton.
Diebold Fire Brick Co.....	"
Canton & Osnaburgh Brick and Tile Co.....	"
Massillon Stone & Fire Brick Co.	Massillon.
Camp Brick Co.....	Aultman.
Harry Thompson.....	Cuyahoga Falls.
Riley Newhouse.....	Magnolia.
J. J. Robertson	Sta. A., Alliance.
Akron Fire Brick Co.....	Akron.
<i>Summit County.</i>	
Akron Clay Co	Akron.
J. Park Alexander.....	"
U. S. Stoneware Co.....	"
Myers & Hall.....	Mogadore.
Akron Brick and Tile Co.....	Akron.
The Whitmore Robison Co.....	"
The Robison Bros. & Co.....	"
Hill Sewer-pipe Co.....	"
Akron Sewer-pipe Co.....	"
Buckeye & Summit Sewer-pipe Co.....	"
Reuben Swinehart.....	Brittain.
The Akron Stoneware Co.....	Akron.
The E. H. Merrill Co.....	"
The Diamond Pottery Co.....	"
<i>Tuscarawas County</i>	
Diamond Fire Clay Co.....	Uhrichsville.
Uhrichsville Fire Clay Co.....	"
Royal Fire Clay Mfg. Co.....	"
Buckeye Fire Clay Co.....	"
Crown Fire Clay Co.....	Canal Dover.
Dover Fire Brick Co.....	Strasburgh.
G. N. Kollar.. ..	New Philadelphia
William A. Gorden	Mineral Point.
C. E. Holden.....	"

IRON ORE FIRMS OF OHIO.

Name of firm.	P. O. address.
<i>Jackson County.</i>	
Tropic Iron Co.....	Jackson.
Jefferson Furnace Co.....	Oak Hill.
Clar, Duduit & Co.....	Remple.
<i>Lawrence County.</i>	
Means, Kyle & Co.. ..	Hanging Rock.
Lawrence Furnace Co.....	Culberson.
E. B. Willard.....	Steece.

IRON ORE FIRMS OF OHIO—Concluded.

Name of firm.	P. O. address.
<i>Lawrence County—Concluded.</i>	
Hecla Iron and Mining Co.	Ironton.
The Campbell Iron Co.....	Campbell.
McGugin & Co.....	Olive Furnace.
A. Chutts & Son.....	Samsonville.
<i>Mahoning County.</i>	
C. C. Buck.....	W. Austintown.
<i>Scioto County.</i>	
The Clare Iron Co.....	Bloom Switch.
Means, Kyle & Co.....	Hanging Rock.
<i>Tuscarawas County.</i>	
Ridgeway, Burton & Co.....	Massillon.
The Penn. Iron and Coal Co.....	Canal Dover.

LIST OF LIMESTONE QUARRIES IN THE STATE.

Name of firm.	P. O address.
<i>Adams County.</i>	
John McNeilan.....	West Union.
Sprinkle & Davis.....	Peebles'.
M. Herdman	Locust Grove.
<i>Allen County.</i>	
H. S. Sanford.....	Lima.
Tetter & Sons.....	"
E. F. Davis.....	"
Armentrout Bros.....	"
Long Bros.	Cranberry.
Watt & Watt.....	Herring.
J. C. Marsh.....	"
Patterson Bros.....	"
Siddall & Townsend.....	Bluffton.
D. P. Shumacher.....	"
Ben Molett.....	"
Aaron Fisher.....	Delphos.
I. C. Ford	"
Sever Bros.....	Landeck.
E. J. Ford & Bros	Scott's Crossing.
Ios. Bird.....	West Cairo.
Jacob Custer	Lima.

LIST OF LIMESTONE QUARRIES IN THE STATE—Continued.

Name of firm.	P. O. address.
<i>Butler County.</i>	
John Killfoyle	Hamilton.
Joseph Duelman, sr	"
J. A. Fromm.....	"
Chris Stillwaugh, sr.....	"
D. M. Sheley.....	"
J. B. Scott.....	"
Joseph Conrade.....	"
Martin Burkhardt	"
G. Kuentzle	"
H. & J. W. Shie ds.....	"
Nelson Good.....	Trenton.
Rupp Bros	Woodsdale.
Samuel Alsburger	"
Joseph Guillaume	Tylersville.
Nichel & Burgon	Excello.
R. J. Livingston	Symmes' Corn'rs.
W. H. McCurley	Ross.
Ben Smith	Middletown.
<i>Clark County.</i>	
Moores & Co.....	Cold Springs.
S. Casperis.....	"
Petticrew & Bro.....	Springfield.
Samuel S. Taylor.....	"
Mills Bros.....	"
Moore's Lime Co.....	"
W. K. Duke	Zanesville.
F. B. Miller.....	Enon.
<i>Clermont County.</i>	
John Trapp.....	Dayton, Ky.
W. M. Poweli.....	Pt. Pleasant.
W. H. Custer.....	"
Galbreath & Bushman.....	"
G. F. Knabb.....	"
Matthew G. Clark	Clermontville.
J. W. McKibben	"
<i>Crawford County.</i>	
John Snavely	Osceola.
Jos. Snavely.....	"
Brokensword Stone Co.....	Bucyrus.
J. B. Sawyer.....	"
A. J. Brown.....	Lykens.
<i>Clinton County.</i>	
Wall & Martindale	Wilmington.
Frank Babb.....	"
Isaiah M. Babb. ...	"
Isaiah F. Myers... ..	"
Samuel M. Leonard.....	"
M. H. Mairs	"
Jasper Brown.....	"

LIST OF LIMESTONE QUARRIES IN THE STATE—Continued.

Name of firm.	P. O. address.
<i>Clinton County—Continued.</i>	
Geo. H. Benlehr	Wilmington.
J. W. Frazier	"
H. H. Hollingsworth.....	Oakland.
Isaac Clark.....	New Vienna.
David W. Clark & Sons	"
Wm. F. Oglesbee	Lumberton.
Larkie C elland	Martinsville.
W. M. Tufts.....	Blanchester.
C. M. Plummer	Port Williams.
John J. Marshall.....	Blanchester.
I. M. Stalter.....	Pansy.
<i>Delaware County.</i>	
G. W. Little	Cleveland.
William Hollenbaugh.....	Delaware.
F. L. Campbell.....	"
Thos. Owens.....	"
Jones & Meredith	Radnor.
<i>Darke County.</i>	
W. J. Neff	Weaver's Station.
J. B. Hershey & Son	Gettysburgh.
<i>Erie County.</i>	
Kunz & Johnson.....	Sandusky.
Olemacher Lime Co.....	"
Chas. Schœffle.....	"
L. B. Johnson & Co	"
M. Callan	"
David McGory.....	"
The Kelly Island Lime & Transport Co.....	Cleveland.
<i>Franklin County.</i>	
Jonas Wilcoxen.....	Columbus.
Taylor, Beall & Co	"
Henry Liniman.....	"
T. J. Price & Co	"
Jos. McNinch.....	"
Link Bros.	"
S. Casperis	Marble Cliff.
Jas. F. Legg	"
<i>Greene County.</i>	
Jas. R. Orr.	Cedarville.
D. S. Erwin	"
John B. Taylor.	"
Boots, Bickett & Conklin	New Jasper.
Irwin & Co.....	Yellow Springs.
Alfred Marsh.....	Xenia.
M. J. Archer	Zimmerman.

LIST OF LIMESTONE QUARRIES IN THE STATE—Continued.

Name of firm.	P. O. address.
<i>Hamilton County.</i>	
Ludwig Grower	Cincinnati.
Ernest Howe.....	"
Frank P. Reiss	"
P. J. O'Malley.....	"
Alex. Weisenberger	"
Jos. Graft... ..	"
John Zinch.....	"
Jas. Morgan	"
Benj. Cooney	"
Henry Stagg & Bro.....	Norwood.
Arthur W. Davis.....	Cincinnati.
S. E. Weihe	Carthage.
M. Manschunyer.....	Pleasant Ridge.
J. K. Galloway.....	Rossmoyne.
Wm. Galloway.....	"
Chas. M. Field.....	Glendale.
The Dexter Lumber Co	Norwood.
<i>Hancock County.</i>	
C. B. Ball & Co	Findlay.
J. W. Wells & Son	"
M. Hirsher & Son	"
Aultman, Pressnell & Co.....	"
Isaac Hershey	"
Mibourn & Harbison	"
E. Barnd	"
<i>Hardin County.</i>	
Jas. G. Tressell.....	Ada.
John Tressell.....	"
Isaac B. Turner.....	"
Patterson Bros	"
Ry. Stone & Ballast Co	Dunkirk.
D. R. McArthur & Co.....	Kenton.
Frame & Stevens.....	"
A. M. Bowers.....	Forest.
<i>Highland County.</i>	
Frederick Quarrenburgher.....	Greenfield.
Rucker Stone Co	"
McClaven & Rosher.....	Rosher.
John Rosher & Son.....	Leesburgh.
<i>Holmes County.</i>	
L. G. Donald	Millersburgh.
Conrade Schueler, Jr.....	"
<i>Hocking County.</i>	
Silas Howdyshell.....	Winona Furnace.
<i>Jackson County.</i>	
Tropic Iron Co	Jackson.

LIST OF LIME TONE QUARRIES IN THE STATE—Continued.

Name of firm.	P. O. address.
<i>Logan County.</i>	
Hamilton Bros.	Bellefontaine.
Bellefontaine Stone & Lime Co.....	"
H. M. Brown.....	Belle Center.
Washington Spencer.....	New Richmond.
C. V. Cochran.....	W. Middleburg.
Ella K. Piatt..	West Liberty.
<i>Lawrence County.</i>	
E. B. Willard & Co.....	Ironton.
Means, Kyle & Co.....	Hanging Rock.
<i>Lucas County.</i>	
C. Dodd.....	Waterville.
Thos. Henehan & Bro	Toledo.
Bick & Glan.....	"
J. L. Pray & Son.....	White House.
Stephen Brogan.....	"
<i>Marion County.</i>	
John Evans.....	Marion.
Fred Hinamon.....	"
Daniel Lawrence.....	"
The Peters Stone Co.....	"
The Norris & Christian Lime & Stone Co.....	"
<i>Miami County.</i>	
Fred Deeter & Co.....	Pleasant Hill.
The Mercer Co. Stone & Gravel Co.....	"
John Attenweiler.....	Ludlow Falls.
F. M. Coppock.	"
Circle & Myers	"
D. C. S alter & Co.....	Piqua.
G. W. McCabe	"
Levi Cofield.....	"
G. W. Butt.....	Covington.
D. L. Face.....	"
J. H. Ruhl.....	"
Covington Stone Co.....	"
C. B. Fletcher.....	"
Chas. Boeringer.....	"
August Burch.....	"
Levi Falknor.....	"
Oliver Nichodenus.....	North Clayton.
S. M. McLaughlin.....	Brosford.
Jas. Nichodenus.....	North Clayton.
O. D. Brown.....	Dayton.
H. B. Shoup.....	"
John Brown.....	Rex.
<i>Montgomery County.</i>	
Huffman & Renner.....	Dayton.
Jacob Seybold.....	"

LIST OF LIMESTONE QUARRIES IN THE STATE—Continued.

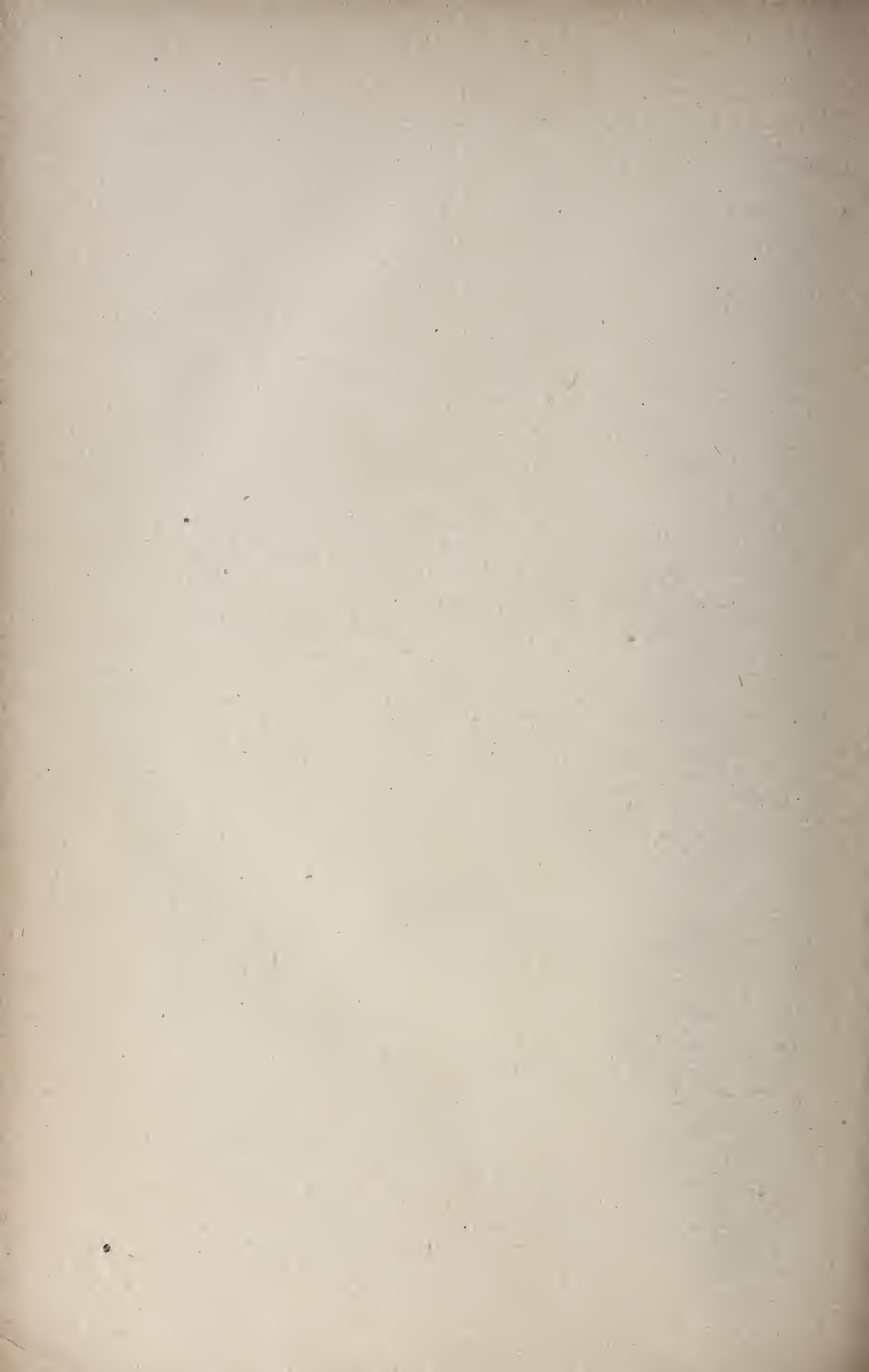
Name of firm.	P. O. address.
<i>Montgomery County—Concluded.</i>	
Shafer & Green.....	Dayton.
The Lewis & Talbot Stone Co	"
Jas. Manuel.....	Centerville.
<i>Muskingum County.</i>	
Abram Emery.....	Zanesville.
Philip Mourin.....	"
J. F. & W. C. Lucas.....	"
Henry Abele.....	"
Hoover Bros.....	Fultonham.
J. H. Lenhart.....	White Cottage.
<i>Ottawa County.</i>	
E. F. Gregg & Co.....	Genoa.
William Habbler.....	"
Frank Holt.....	"
The Toledo White Lime Co.....	Toledo.
Genoa & Rocky Ridge Lime Co.....	"
William Clark.....	Clay Center.
Dr. Jos. Kingham.....	Rocky Ridge.
Maurice Henman.....	"
<i>Paulding County.</i>	
John Mast.....	Junction.
Reason Johnson.....	"
W. Brunaker.....	Defiance.
<i>Perry County.</i>	
David Hardy.....	Maxville.
Daniel Hennicks.....	"
<i>Preble County.</i>	
Jonathan Paxton.	College Corners.
Albert Ridenour.....	"
John Lasley.....	"
Eaton Stone Co.....	Eaton.
Fisher Lime & Stone Co.....	"
Jas. Saylor.	"
Jas. A. Kautz.....	"
New Paris & Richmond Stone Quarry Co.....	New Paris.
Danily & Deem	"
I. J. Weaver	Lewisburgh.
C. Disher	"
F. J. Wilson..	"
John T. Milier.....	Euphemia.
John A. Elliott.....	Morning Sun.
Nathan C. Sloan.....	"
Jas. White.....	Camden.
J. A. Barnet.....	"
Peter Foutz.....	"
Ireton Bros.....	"
Elliot Bros.....	Fair Haven.

LIST OF LIMESTONE QUARRIES IN THE STATE—Continued.

Name of firm.	P. O. address.
<i>Putnam County.</i>	
Emans & Joseph.....	Pandora.
Henry Grismore.....	"
Samuel L. Hart.....	"
Sackett & Beckwith.....	"
Wm. Donnell.....	Kalida.
T. W. Thomas.....	Rimer.
D. P. Rimer.....	"
Dickman & Bertling.....	Ft. Jennings.
J. B. Harmon.....	Gilboa.
John Diller.....	Pandora.
J. B. Schuerman.....	Ft. Jennings.
<i>Sandusky County.</i>	
Gottron Bros.....	Fremont.
A. R. Corser.....	"
Smith & Donn.....	Gibsonburgh.
Zorn, Horning & Co.....	"
H. Rancamp.....	Toledo.
Chris Hobbler.....	Woodville.
<i>Seneca County.</i>	
J. Detwiler.....	Bloomville.
E. H. France.....	"
Koller & Geiger.....	"
Henry Dryfuse.....	"
D. L. Fisher & Son.....	"
Eureka White Lime Co.....	Kansas.
Mowery & Lynch.....	"
Mathias Weot.....	Tiffin.
<i>Shelby County.</i>	
Wm. Etherington.....	Sidney.
<i>Stark County.</i>	
Canton Limestone Co.....	Canton.
Josiah B. Bosler.....	Louisville.
Wm. B. Warstler.....	Oral City.
I. B. Druckenbrod.....	Cairo.
Jas Clapsaddle.....	Marlboro.
<i>Scioto County.</i>	
The Clare Iron Co.....	Bloom Switch.
<i>Tuscarawas County.</i>	
Penn. Iron & Coal Co.....	Canal Dover.
<i>Union County.</i>	
J. C. Merchant & Son.....	Jerome.

LIST OF LIMESTONE QUARRIES IN THE STATE—Concluded.

Name of firm.	P. O. address.
<i>Van Wert County.</i>	
E. H. France.....	Middlepoint.
Wm. J. Semple.....	Van Wert.
<i>Wood County.</i>	
Daugherty & Co.....	Toledo.
N. B. Eddy & Co.....	"
Sugar Ridge Stone & Lime Co.....	Sugar Ridge.
C. D. Nye.....	"
William Jones.....	"
Holder & Strayer.....	Grand Rapids.
W. C. Martin.....	Bowling Green.
The Snow Flake Lime Co.....	"
Fostoria Stone & Lime Co.....	Fostoria.
D. P. Lloyd & Co.....	"
J. B. Luckey.....	Stony Ridge.
The Lime City Co.....	Toledo.
<i>Wyandot County.</i>	
M. D. McCarey.....	Crawford.
M. B. Smith	Carey.
Wm. Lanker.....	"



Mining Laws

OF THE

STATE OF OHIO,

WITH

Latest Amendments to April 19th, 1894.

PUBLISHED BY

ROBERT M. HASELTINE,

Chief Inspector of Mines.

Mining Laws of Ohio.

INSPECTOR OF MINES.

SEC. 290. For the purpose of facilitating an efficient and thorough inspection of mines in Ohio, and to provide an adequate inspecting force therefor, the governor shall appoint, by and with the consent of the senate, one chief inspector, who, with the approval of the governor, shall appoint five district inspectors of mines; the chief inspector shall hold his office for the term of four years, and the district inspectors shall hold their office for the term of three years from the date of their appointment, and until their successors are appointed and qualified; the first appointments hereunder shall be made within thirty days from the date when this act shall take effect; and in case of the resignation, removal or death of the chief inspector, or any district inspector, the vacancy shall be filled in the manner above provided for original appointments for the unexpired term only, of the position so made vacant. No person shall be appointed chief inspector of mines unless he is possessed of a competent knowledge of chemistry, the geology of Ohio, and mineralogy, in so far as those sciences relate to mining, and has a practical knowledge of mining engineering, and the different systems of working and ventilating mines, and the nature and properties of the noxious and poisonous gases of mines, particularly fire damp, and of the best means of preventing and removing the same; and no person shall be appointed district inspector of mines unless he be a practical miner of at least five years' experience, and a resident of the district for which he is appointed, for at least two years, and is possessed of a practical knowledge of the best mode of working and ventilating mines, of the means of detecting the presence of bad or foul air, noxious and poisonous gases, and of the best means of preventing and removing the same.

Appointment of chief and district inspectors; who eligible.

SEC. 290a. That authority be and is hereby given to appoint two additional district inspectors of mines; and they shall be appointed in the same manner and possess the same qualifications and receive the same compensation as the five district inspectors of mines authorized by said section 290. The term of office of the two district inspectors of mines herein provided for shall be three years and they shall take an oath and give bond as provided in section 291 of the Revised Statutes of Ohio, and shall be subject

Additional district inspectors.

to the regulations and requirements of the district inspectors authorized in said section 290 as provided in chapter nine of the Revised Statutes of Ohio. The chief inspector of mines shall assign said additional inspectors for service in districts to be designated by him and he is authorized to divide the state in seven districts in each of which one of the district inspectors of mines shall reside.

Bond and oath.

SEC. 291. Before entering upon the discharge of the duties of their respective offices, the chief inspector and district inspectors shall give bond to the state, the former in the sum of five thousand dollars, and the latter in the sum of two thousand dollars each, to be approved by the governor, conditioned for the faithful performance of their duties, respectively; said bonds, with an oath of office on each, and approval of the governor indorsed thereon, shall be forthwith deposited with the secretary of state; the inspectors, while in office, shall not act as agent, manager or mining engineer for any operator, or in any way be interested in operating any mine.

Their powers and duties.

SEC. 292. The chief inspector and district inspectors shall give their whole time and attention to the duties of their offices, respectively; it shall be the duty of the district inspectors to examine all the mines in their respective districts as often as possible, to see that all the provisions and requirements of this chapter are strictly observed and carried out; they shall particularly examine the works and machinery belonging to any mine, examine into the state and condition of the mines as to ventilation, circulation and condition of air, drainage and general security; they shall make a record of all examinations of mines in their respective districts, showing the date when made, the condition in which the mines are found, the extent to which the laws relating to mines and mining are observed or violated, the progress made in the improvement and security of life and health sought to be secured by the provisions of this chapter, number of accidents, injuries received, or deaths in or about the mines, the number of mines in their respective districts, the number of persons employed in or about each mine, together with all such other facts and information of public interest concerning the condition of mines, development and progress of mining in their respective districts, as they may think useful and proper, which record shall, on or before the first Monday of every month, be filed in the office of the chief inspector, to be by him recorded, and so much thereof as may be of public interest, to be included in his annual report; in case of any controversy or disagreement between the district inspector and the owner and [or ?] operator of any mine, or the persons working therein, or in case of conditions of emergencies requiring counsel, the district inspector may call on the chief inspector for such assistance and counsel as may be necessary; should the district inspector find any of the provisions of this chapter violated or not complied with, by any owner, lessee, or agent in charge of any mine, he shall immediately no-

tify such owner, lessee, or agent in charge, of such neglect or violation, and unless the same is, within a reasonable time, rectified, and the provisions of this chapter fully complied with, he shall institute a prosecution under the provisions of section six thousand eight hundred and seventy-one (6871) of the Revised Statutes. The inspectors shall exercise a sound discretion in the enforcement of the provisions of this act, and if in any respect (which is not provided against by, or may result from a rigid enforcement of any express provisions of this chapter), the inspector find any matter, thing or practice in or connected with any such mine, to be dangerous or defective, so as, in his opinion, to threaten or tend to the bodily injury of any person, the inspector may give notice in writing thereof to the owner, agent or manager of the mine, and shall state in such notice the particulars in which he considers such mine, or any part thereof, or any matter, thing of [or?] practice to be dangerous or defective, and require the same to be remedied. For the purpose of making the inspection and examinations provided for in this section, the chief inspector and the district inspectors shall have the right to enter any mine at all reasonable times, by night or by day, but in such manner as shall not unnecessarily obstruct the working of the mine; and the owner or agent of such mine is hereby required to furnish the means necessary for such entry and inspection; the inspection and examination herein provided for shall extend to fire-clay, iron ore, and other mines, as well as coal mines.

SEC. 293. The chief inspector shall designate the counties or portions thereof in the state which shall compose the different districts, and may at any time change the same, when in his judgment the best interests of the service may require, and shall issue such instructions, make such rules and regulations for the government of the district inspectors, not inconsistent with the powers and duties vested in them by law, as shall secure uniformity of action and proceedings throughout the different districts; and he may order one district inspector to the assistance of any other district inspector, or make temporary transfers of district inspectors, when, in his judgment, the efficiency or necessity of the service demands or permits; and he may, with the consent of the governor, remove any district inspector at pleasure; the district inspectors are hereby invested with all the powers and authority of county auditors, as sealers of weights and measures in the different counties of this state, and for any service performed as such sealers they shall receive the same compensation as now provided by section ten hundred and sixty-two (1062) of the Revised Statutes; but said inspectors shall exercise said authority in connection with weights and measures only at mines in their respective districts; the chief inspector shall render such personal assistance to the district inspectors as they, from time to time, may require, and shall make such personal inspection of the mines as he may deem necessary

Districts, how made and changed.

Rules for district inspectors.

Power of chief over district inspectors.

Their powers as sealers of weights and measures.

Special duties of chief inspector.

His reports.

Mining operators to make certain report to him.

Penalty for their failure to make such reports.

Matters to be included in report of chief inspector.

Maps, plans of mines, etc., shall be kept in offices.

and his other duties will permit; he shall keep in his office and carefully preserve all maps, surveys and other reports and papers required by law to be filed with him, and so arrange and preserve the same as shall make them a permanent record of ready, convenient and connected reference; he shall compile and consolidate the reports of district inspectors, and annually make report to the governor of all his proceedings, as well as those of the district inspectors, the condition and operation of the different mines of the state, and the number of mines and the number of persons employed in or about such mines, the amount of coal, iron ore, limestone, fire-clay, or other mineral mined in this state; and for the purpose of enabling him to make such report, the owner, lessee or agent in charge of such mine, who is engaged in mining, and the owner, lessee or agent of any firm, company or corporation in charge of any fire-clay, or iron ore mined [mine?] or any limestone, or quarry, or who is engaged in mining or producing any mineral whatsoever in this state, shall, on or before the 31st day of January in every year, send to the office of the chief inspector of mines, upon blanks furnished by him, a correct return specifying with respect to the year ending on the preceding 31st day of December, the quantity of coal, iron ore, fire-clay, limestone, or other mineral product in such mine, or quarry, and the number of persons ordinarily employed in or about such mine, or quarry, below and above ground, distinguishing the persons and labor below ground and above ground. Every owner, lessee or agent of a mine or quarry who fails to comply with this section, or makes any return which to his knowledge is false in any particular, shall be deemed guilty of an offense against this section, and shall be fined one hundred dollars, to be recovered at the suit of the chief inspector in the name of the state of Ohio; he shall also include in such report such facts relative to the mineral resources of the state and the development of the same, as shall, in his judgment, be of public interest; he shall enumerate all accidents, and the manner in which they occurred, in or about the mines, and give all such other information as he thinks useful and proper, and make such suggestions as he deems important, relative to mines and mining, and any other legislation that may be necessary on the subject for the better preservation of the life and health of those engaged in such industry.

SEC. 294. The chief inspector shall have an office in the state-house, in which shall be carefully kept the maps and plans of all mines in the state, and all records, correspondence, papers, and apparatus and property pertaining to his duties, belonging to the state, and shall be handed over to his successor in office; the district inspectors shall keep their offices in such place in their respective districts as will be most central and convenient to the mining region of their respective districts, and shall keep and preserve in their offices all maps, plans, surveys, and other papers belonging to their offices, in such manner as shall be of easy

access and convenient reference to persons entitled to examine them. The district inspectors shall receive an annual salary of twelve hundred dollars (\$1,200) per annum, and the chief inspector shall receive the same salary as is now provided for inspector of mines under section twelve hundred and eighty-four of the Revised Statutes.

Salaries.

SEC. 295. There shall be provided for the inspectors weights and measures and all instruments and chemical tests necessary for the discharge of their respective duties under this chapter, which shall be paid for on the certificate of the chief inspector, from his contingent fund, and shall belong to the state.

Instruments, etc., to be furnished inspectors.

SEC. 296. The owner or agent of any mine having an excavation of not less than fifteen thousand cubic yards, shall make, or cause to be made, an accurate map or plan of the working of such mine on a scale of not less than two hundred feet to the inch, showing the area mined or excavated, and the location and connection with such excavation of the mine of the lines of all adjoining lands, and the name or names of each owner or owners, so far as known, marked on each tract, and the owner or agent shall annually thereafter make, or cause to be made, an addition to said map, showing the progress and plan of the working of such mine during the previous year up to the date of survey; provided, that said additions shall be made semi-annually whenever the mine inspector deems it necessary and so directs. The map shall be kept at the office of such mine, and open to the inspection of the mine inspector, or his assistants, at all reasonable times, and at the request of the inspector the owner or agent shall file a correct copy of such map with said mine inspector at Columbus, and in case of refusal on the part of the owner or agent to make and file such map, the inspector is authorized and required hereby to cause such map or maps to be made in duplicate, at the expense of said owner or agent, the cost of which shall be recoverable against the owner or agent in the name of the state mine inspector; and in case of refusal by said owner or agent to make, or cause such map and the additions thereto to be made, for sixty days after notice by the mine inspector, said agent or owner shall be liable to a fine of five dollars for each and every day until said map is made, which shall be collected in the name of the state of Ohio, at the suit of the state mine inspector, and the amount so recovered shall be paid into the township school fund of the township when collected. And when any mine is exhausted or abandoned, and before the pillars are drawn in any portion of the mine, the owner or agent thereof shall cause to be made a correct map of such mine, showing the area and working of the same to the day of abandoning, or of drawing pillars for the purpose of abandoning, and file such map within ninety days thereafter at the office of the county recorder in the county where such mine is located; said map shall have attached thereto the sworn certificate of the mining engineer making the map, and of the mine

Owner of a mine shall furnish a map of his mine, etc.

Inspector to cause maps to be made.

Maps of abandoned mines to be made.

boss in charge of the underground workings of said mine ; such map shall be properly labeled and filed by the recorder, and be preserved as a part of the records of the land on which such mines are located, and the recorder shall receive for said filing from said owner or agent a fee of fifty cents.

Outlets re-
quired.

SEC. 297. It is unlawful for the owner or agent of any coal mine, worked by shaft, to employ or permit any person to work therein, unless there are, to every seam of coal worked in each mine, at least two separate outlets, separated by natural strata of not less than one hundred feet in breadth, by which shafts or outlets distinct means of ingress and egress are always available to the persons employed in the mine ; but it is not necessary for the two outlets to belong to the same mine if the persons employed therein have safe, ready and available means of ingress and egress by not less than two openings. This section shall not apply to opening a new mine while being worked for the purpose of making communication between said two outlets so long as not more than twenty persons are employed at any one time in such mine, neither shall it apply to any mine or part of a mine in which the second outlet has been rendered unavailable by reason of the final robbing of pillars previous to abandonment, so long as not more than twenty persons are employed therein at any one time.. The cage or cages, and other means of egress shall at all times be available for the persons employed, where there is no second outlet. The escapement shafts shall be fitted with safe and available appliances, by which the persons employed in the mine may readily escape in case an accident occurs deranging the hoisting machinery at the main outlets, and such means or appliances for escape shall always be kept in a safe condition ; and in no case shall an air shaft, with a ventilating furnace at the bottom, be construed to be an escapement shaft, within the meaning of this section. To all other coal mines, whether slopes or drifts, two such openings or outlets must be provided within twelve months after shipments of coal have commenced from such mine ; and in case such outlets are not provided as herein stipulated, it shall not be lawful for the agent or owner of such slope or drift to permit more than ten persons to work therein at any one time. In case a coal mine has but one shaft, slope or drift, for the ingress or egress of the men working therein, and the owner thereof does not own suitable surface ground for another opening, he may select and appropriate any adjoining land for that purpose, and may make an additional shaft or outlet under, through or upon any intervening land, or landing adjoining, and shall be governed in his proceeding in appropriating such land by the provisions of law in force, providing for the appropriation of private property by corporations, and such appropriation may be made, whether he is a corporator or not ; but no land shall be appropriated under the provisions of this chapter until the court is satisfied that suitable premises can not be obtained upon reasonable terms.

SEC. 298. The owner or agent of every coal mine, whether shaft, slope or drift, shall provide and maintain for every such mine an amount of ventilation of not less than 100 cubic feet, per minute, per person employed in such mine, which shall be circulated and distributed throughout the mine in such a manner as to dilute, render harmless and expel the poisonous and noxious gases from each and every working place in the mine, and no working place shall be driven more than sixty feet in advance of a break-through, or air-way; and all break-throughs, or air-ways, except those last made near the working-faces of the mine, shall be closed up and made air tight by brattice, trap-doors, or otherwise, so that the currents of air, in circulation in the mine may sweep to the interior of the mine, where the persons employed in such mine are at work, and all mines governed by the statute shall be provided with artificial means of producing ventilation, such as forcing, or suction fans, exhaust steam, furnaces or other contrivances, of such capacity and power as to produce and maintain an abundant supply of air, and all mines generating fire damp shall be kept free from standing gas, and every working place shall be carefully examined every morning with a safety lamp, by a competent person or persons, before any of the workmen are allowed to enter the mine. All underground entrances to any places not in actual course of working or extension shall be properly fenced across the whole width of such entrances so as to prevent persons from inadvertently entering the same.

Ventilation.

SEC. 299. The owner or agent of every coal mine operated by shaft, in all cases where the human voice can not be distinctly heard, shall forthwith provide and maintain a metal tube from the top to the bottom of such shaft, suitably calculated for the free passage of sound therein, so that conversation may be held between persons at the bottom and top of the shaft; there shall also be provided an approved safety-catch, and a sufficient cover overhead, on all carriages used for lowering and hoisting persons, and in the top of every shaft an approved safety-gate, and an adequate brake shall be attached to every drum or machine used for lowering or raising persons in all shafts or slopes; and there shall also be provided in every shaft a traveling or passage way from one side of a shaft bottom to the other, so that persons working therein may not have to pass under descending cages; and all slopes or engine planes, used as traveling ways by persons in any mine, shall be made of sufficient width to permit persons to pass moving cars with safety; but if found impracticable to make any slope or engine plane of sufficient width, the safety hole of ample dimensions, and not more than sixty feet apart, shall be made on one side of said slope or engine plane. Such safety holes shall always be kept free from obstructions, and the roof and sides shall be made secure. The boilers used for generating steam, and the buildings containing the boilers shall not be nearer than sixty feet to any shaft or slope, or to any building or

Safety apparatus and precautions.

Boilers.

inflammable structure connecting with or surrounding said shaft or slope; but this section shall not apply to any shaft or slope until the work of development and shipment of coal has commenced.

Competent engineers must be employed, etc.

SEC. 300. No owner or agent of any coal mine operated by a shaft or slope shall place in charge of any engine used for lowering into or hoisting out of such mine persons employed therein, any but experienced, competent and sober engineers; and no engineer in charge of such engine shall allow any person, except such as may be deputed for that purpose, by the owner or agent, to interfere with it or any part of the machinery, and no person shall interfere or in any way intimidate the engineer in the discharge of his duties; and in no case shall more than ten men ride on any cage or car at one time, and no person shall ride upon a loaded cage or car in any shaft or slope.

Lighting and ventilation.

SEC. 301. All safety lamps used for examining coal mines, or which are used in any coal mine, shall be the property of the owner of the mine, and shall be under the charge of the agent thereof, and in all mines, whether they generate fire damp or not, the doors use[d] in assisting or directing ventilation of the mine, shall be so hung or adjusted that they will shut of their own accord and can not stand open; and all main doors shall have an attendant, whose constant duty shall be to open them for transportation and travel, and prevent them from standing open longer than is necessary for persons or cars to pass through; and the mining boss shall keep a careful watch over the ventilating apparatus and the air way, and he shall measure the ventilation at least once a week, at the inlet and outlet, and also at or near the face of all the entries, and the measurements of air so made shall be noted on blanks furnished by the chief inspector; and on the first day of each month the mining boss of each mine shall sign one of such blanks, properly filled with the said actual measurements, and forward the same to the chief inspector, and any mining boss making false returns of such air measurements shall be deemed guilty of an offense against this section. Every person having charge of any mine, whenever loss of life occurs by accident, connected with the working of such mine, or by explosion, shall give notice thereof forthwith, by mail or otherwise, to the inspector of mines, and to the coroner of the county in which such mine is situated, and the coroner shall hold an inquest upon the body of the person or persons whose death has been caused and inquire carefully into the cause thereof, and shall return a copy of the findings and all the testimony to the chief inspector. The owner, agent, or manager of every mine shall, within twenty-four hours next after any accident or explosion, whereby loss of life or personal injury may have been occasioned, send notice in writing to the chief inspector, and shall specify in such notice the character and cause of the accident, and the name or names of the persons killed and injured, with the extent and nature of the injuries sustained. When any personal injury, of which notice is required to be

Notice of accidents.

Duty of inspectors.

sent under this section, results in the death of the person injured, notice in writing shall be sent to the chief inspector within twenty-four hours after such death comes to the knowledge of the owner, agent or manager; and when loss of life occurs in any mine by explosion, or accident, the owner, agent, or manager of such mine shall notify the chief inspector, or the district inspector forthwith, of the fact, and it shall be the duty of the chief inspector to go himself, or require one of the district inspectors to go, at once to the mine in which said death occurred, and inquire into the cause of the same and make a written report, fully setting forth the condition of the part of the mine where such death occurred, and the cause which led to the same; which report shall be filed by the chief inspector in his office as a matter or [of?] record, and for future reference.

For any injury to persons or property, occasioned by any violation of this act, or any willful failure to comply with its provisions by any owner, agent or manager of any mine, a right of action shall accrue to the party injured, for any direct damage he may have sustained thereby; and, in case of loss of life, by reason of such willful neglect or failure, aforesaid, a right of action shall accrue to the widow and the lineal heirs of the person whose life shall be lost, for like recovery of damages for the injury they have sustained.

The owner, agent, or manager of any mine shall also give notice to the chief inspector of mines in any or all of the following cases:

Other notices
to be given
chief inspector
of mines.

1. Where any change occurs in the name of any mine, or in the name of any owner, agent, or manager of any mine, or in the officers of any incorporated company which owns or operates a mine.

2. Where any working is commenced for the purpose of opening a new shaft, slope or mine, to which this act applies.

3. Where any mine is abandoned or the working thereof discontinued.

4. Where the working of any mine is recommenced after any abandonment or discontinuance for a period exceeding three months.

5. Where the pillars of a mine are about to be removed or robbed.

6. Where a squeeze or crush, or any other cause or change may seem to affect the safety of persons employed in any mine, or where fire occurs, or a dangerous body of gas is found in any mine,

SEC. 302. No boy under twelve years of age shall be allowed to work in any mine, nor any miner between the ages of twelve and sixteen years unless he can read and write; and in all cases of minors applying for work the agent of such mine shall see that the provisions of this section are not violated; and the mine inspector may, where doubt exists as to the age of any minors found working in any mine, qualify the said minor or his parents as to his age.

Employment
of minors.

Action for
non-compli-
ance with
statutes.

SEC. 303. In case any coal mine does not, in appliances for the safety of the persons working therein, conform to the provisions of this chapter, or the owner or agent disregards the requirements of this chapter, any court of competent jurisdiction may, on application of the inspector, by civil action in the name of the state, enjoin or restrain the owner or agent from working or operating such mine until it is made to conform to the provisions of this chapter; and such remedy shall be cumulative, and shall not take the place of or affect any other proceedings against such owner or agent authorized by law for the matter complained of in such action.

When governor
shall convene a
board of ex-
aminers.

SEC. 304. When written charges of gross neglect of duty or malfeasance in office against any inspector is made and filed with the governor, signed by not less than fifteen coal miners, or one or more operator of mines, together with a bond in the sum of five hundred dollars, payable to the state, and signed by two or more responsible freeholders, and conditioned for the payment of all costs and expenses arising from the investigation of such charges, the governor shall convene a board of examiners, to consist of two practical coal miners, one chemist, one mining engineer and one operator, at such time and place as he deems best, giving ten days' notice to the inspector against whom the charges are made, and also the person whose name appears first in the charges; and the board, when so convened, and having been first duly sworn, truly to try and decide the charges made, shall summon any witnesses so desired by either party, and examine them on oath, which may be administered by any member of the board, and depositions may be read on such examination, as in other cases; and the board shall examine fully into the truth of such charges and report the result of their investigation to the governor; and the board shall award the costs and expenses of such investigation against the inspectors or the persons signing the bond according to their finding, against said inspector or in his favor, which costs and expenses shall include the compensation of such board, of five dollars per day for each member, for the time occupied in the trial and in traveling from and to their homes; and the attorney general shall forthwith proceed to collect such costs and expenses, and pay the same into the state treasury, being in the first instance paid out of the state treasury on the certificate of the president of such board.

Duties of the
board.

Right of access
to mines, etc.

SEC. 305. In all coal mines in the state the miners employed and working therein, the owners of the land or other persons interested in the rental or royalty of any such mine, shall at all proper times have full right of access and examination of all scales, machinery or apparatus used in or about such mine to determine the quantity of coal mined, for the purpose of testing the accuracy and correctness of all such scales, machinery or apparatus; and such miners, landowners or other persons may designate or appoint a competent person to act for them, who shall at all proper

times have full right of access and examination of such scales, machinery or apparatus, and seeing all weights and measures of coal mined, and the accounts kept of the same; but not more than one person on behalf of the miners collectively, or one person on behalf of the landowners or other persons interested in the rental or royalty jointly, shall have such right of access, examination and inspection of scales, weights, measures and accounts at the same time, and that such person shall make no unnecessary interference with the use of such scales, machinery or apparatus; and the miners employed in any mine may, from time to time, appoint two of their number to act as a committee to inspect, not oftener than once in every month, the mine and the machinery connected therewith, and to measure the ventilating current, and if the owner, agent or manager so desires, he may accompany said committee by himself or two or more persons which he may appoint for that purpose; the owner, agent or manager shall afford every necessary facility for making such inspection and measurement, but the committee shall not in any way interrupt or impede the work going on in the mine at the time of such inspection and measurement, and said committee shall, within ten days after such inspection and measurement, make a correct report thereof to the inspector of mines, on blanks to be furnished by said inspector for that purpose; and if such committee make to the inspector a false or untrue report of the mines, such act shall constitute a violation of this section.

Miners to appoint a committee to inspect mine and machinery, etc.

Committee to report to the inspector.

SEC. 306. Only a pure animal or vegetable oil, or other oil as free from smoke as a pure animal or vegetable oil, and not the product or by-product of rosin, and which shall, on inspection, comply with the following test, shall be used for illuminating purposes in the mines of this state. All such oil must be tested at 60 degrees Fahrenheit. The specific gravity of the oil must not exceed 24 degrees Tagliabue. The test of the oil must be made in a glass jar one and five-tenths inches in diameter by seven inches in depth. If the oil to be tested is below 45 degrees Fahrenheit in temperature, it must be heated until it reaches about 80 degrees Fahrenheit; and should the oil be above 45 degrees and below 60 degrees Fahrenheit it must be raised to a temperature of about 70 degrees Fahrenheit, when, after being well shaken, it should be allowed to cool gradually to a temperature of 60 degrees Fahrenheit, before finally being tested. In testing the gravity of the oil, the Tagliabue hydrometer must be, when possible, read from below, and the last line which appears under the surface of the oil shall be regarded as the true reading. In case the oil under test should be opaque or turbid, one-half of the capillary attraction shall be deemed and taken to be the true reading. Where the oil is tested under difficult circumstances, an allowance of one-half degree may be made for possible error in parallax before condemning the oil for use in the mine. A l oil sold to be used for illuminating purposes in the mines of this state, shall be contained in barrels or packages branded con-

spicuously with the name of the dealer, the specific gravity of the oil, and the date of shipment.

SECTION 2. That section 306 be supplemented by the enactment of the following section, numbered as indicated:

Sec. 306a. Any person or persons, firm or corporation which ships any oil contained in any barrel or barrels, package or packages, which are not branded as prescribed in section 306, said oil to be used for illuminating purposes in coal or other mines, and any person or persons, firm or corporation which sells any oil other than that prescribed in section 306, to be used for illuminating purposes in coal or other mines, and any person or persons, firm or corporation, having in charge the operation or running of any mine, which, in a mine under his or its charge, uses or permits the use of any oil other than that prescribed in section 306, and any miner or mine employe who uses, with a knowledge of its character, in any mine in this state, any oil other than that prescribed in section 306, shall be fined not less than five nor more than fifty dollars; and any individual, firm, company or corporation which sells any oil other than that prescribed in section 306, in a quantity exceeding five barrels at one sale, to be used for illuminating purposes in coal or other mines, shall be fined not less than twenty-five nor more than one hundred dollars. Mayors and justices of the peace shall have jurisdiction to try any violations of this section, and their judgment shall be final. Every person who, after being once convicted of violating this section, shall be convicted of again violating any of the provisions of this section, may in addition to the fine before provided, be imprisoned not less than ten days nor more than thirty days. On complaint, before a mayor or justice of the peace, of a second violation of this act involving the punishment of imprisonment, if a trial by jury be not waived, a jury shall be chosen and the case tried, after the manner provided in section 3718a of the Revised Statutes. All fines assessed and collected under prosecutions begun, or caused to be begun by the chief inspector of mines, or any district inspector of mines, shall be paid by the court to the chief inspector of mines, and by him paid into the state treasury to the credit of a fund which is hereby appropriated for the use of the chief inspector of mines in prosecuting violations of this section. Any excess of fines collected over the expenses incurred in prosecutions under this section remaining at the close of the fiscal year, shall be credited to the general revenue fund of the state.

SECTION 3. Section 306, as amended March 29th, 1892 (89 O. L., 164), is hereby repealed, and this act shall take effect and be in force from and after its passage.

Mines; penalty
for injuring.

SEC. 6871. Whoever knowingly violates any of the provisions of sections two hundred and ninety-seven, two hundred and ninety-eight, two hundred and ninety-nine, three hundred, three hundred and one, three hundred and two and three hundred and five, or does any act whereby

the life or health of the persons, or the security of any mine and machinery are endangered; or any miner or other person employed in any mine governed by the statute, who intentionally and willfully neglects or refuses to securely prop the roof of any working place under his control; or neglects or refuses to obey any order given by the superintendent of a mine in relation to the security of the mine in the part thereof where he is at work, and for fifteen feet back from the face of his working place; or any miner, workman, or other person who shall knowingly injure any water gauge, barometer, air-course or brattice, or shall obstruct or throw open any air-ways, or shall handle or disturb any part of the machinery of the hoisting engine, or open a door of the mine and not have the same closed again, whereby danger is produced either to the mine or those that work therein; or who shall enter any part of the mine against caution; or who shall disobey any order given in pursuance of this act; or who shall do any willful act, whereby the lives and health of persons working in the mine, or the security of the mine, or the machinery thereof, is endangered; or any person having charge of a mine, whenever loss of life occurs by accident connected with the working of such mine, or by explosion, who neglects or refuses to give notice thereof forthwith, by mail or otherwise, to the chief inspector of mines, and to the coroner of the county in which such mine is situate; or any such coroner who neglects or refuses to hold an inquest upon the body of the person whose death has been thus caused, and return a copy of his findings and all the testimony to the inspector, shall be fined not less than fifty dollars, or imprisoned in the county jail not more than thirty days or both. The owner, agent or operator of every coal mine shall keep a supply of timber constantly on hand and shall deliver the same to the working place of the miner, and no miner shall be held responsible for accidents which may occur in mines where the provisions of this section have not been complied with by the owner, agent or operator thereof.

To supply
timber.

SEC. 2. Section 6871, as amended April 11, 1888, be and the same is hereby repealed.

AN ACT

Supplementary to section 3184 of the Revised Statutes, as amended March 22, 1881, to be sectionally numbered 3184a.

SEC. 3184a Any person who performs labor in mining coal, or removing the same from mines, or other manual labor connected therewith, for any coal or mining company owning, operating or leasing coal mines within this state, by virtue of a contract with the owner, owners, or his or their authorized agent, shall have a lien to secure the payment for the same upon the mine or mines of such company and upon all the rights of the company or corporation own-

Lien upon
mines for labor.

ing or leasing such mines, and upon all the personal property of any such company or corporation used in conducting their business of mining coal, whether the same be located at or near the mines or elsewhere.

Passed March 27, 1889.

AN ACT

To amend section 1 of an act entitled "An act to compel children under fourteen years of age to attend school a certain length of time each year," of the Revised Statutes of Ohio, passed April 25, 1890

Children between eight and fourteen years compelled to attend school.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That section 1 of an act entitled "An act to compel children under fourteen years of age to attend school a certain length of time each year," of the Revised Statutes of Ohio, passed April 25, 1890, be amended so as to read as follows:

Sec. 1. That all parents, guardians and other persons who have care of children shall instruct them, or cause them to be instructed, in reading, spelling, writing, English grammar, geography and arithmetic, and every parent, guardian, or other persons having control and charge of any child between the ages of eight and fourteen years, shall be required to send any such child or children to a public or private school for a period of not less than twenty weeks in city districts, in each school year, commencing September 1, ten weeks of which, at least, shall be consecutive, which shall commence within the first four weeks of the first term of the school year; and in special village and township districts, not less than sixteen weeks in each school year, eight of which shall be consecutive, unless such child or children are excused from such attendance by the superintendent of the public, private or parochial schools in cities, or by authority of the board of education in village, special and township districts, when it shall have been shown to the satisfaction of said superintendent, or said board, that the physical or mental condition of such child or children has been such as to prevent his, her or their attendance at school, or that said child or children are taught at home by some qualified person or persons in such branches as are usually taught in primary schools; and in case the said board or superintendent refuse to grant such excuse from attendance, the parent or guardian of such child or children shall have the right to appeal from the decision of the board to the probate court of the county, on giving a bond, within ten days after such decision, to the approval of said court, to pay all costs made therein, and the decision of said court in the matter shall be final; provided, that all youths between eight and sixteen years of age, not engaged in some regular employment, shall attend school for the full term the schools of the district in which they reside are continued in the school year, unless excused for the reasons named in this section, and if the parents or guardians having legal charge of such youth shall

fail to send these youth to school regularly for said full term, or said youth shall absent themselves from school without satisfactory excuse, said parents and guardians and said youth shall be subject to the provisions and penalties of section 8 of this act.

SEC. 2. That no child under the age of fourteen years shall be employed by any person, company or corporation during the school term, and while the public schools are in session, unless the parent, guardian, or other person having care of such child, shall be able to give substantial proof that he or she has fully complied with the requirements of section 1 of this act, or that such child has completed the usual course of primary and grammar grades in some public or private school, and such person, company or corporation shall demand such proof before giving employment to any minor, and shall make a record of said proof given, and shall be required, upon the request of the officer (hereinafter provided for) to allow said officer to examine the said record, and also the record as provided for in section 6986aa of the Revised Statutes, and any person, company or corporation employing any child contrary to the provisions of this act shall be liable to a penalty of fifty dollars for each offense, to be recovered in an action for debt in any court, or before any justice of the peace having jurisdiction, and such action shall be brought in the name of the clerk of the board of education.

Unlawful to employ children under fourteen years, except under certain conditions.

SEC. 3. That all minors over the age of fourteen, and under sixteen years, who cannot read and write the English language, shall be required to attend school at least one-half of each day, or to attend some evening school organized and maintained by the board of education, or to take regular private instruction from some person qualified, in the opinion of the superintendent of the schools in cities, and the clerk of the board of education in special village and township districts to teach such branches until he or she shall obtain a certificate from the superintendent of schools in cities, and the clerk of the board of education in special village and township districts, certifying that said minor can read at sight and write legibly simple sentences in the English language, and every person, company or corporation having such minor in employment shall be required to exact such school attendance from such minor, and be prepared, upon demand of the hereinbefore mentioned officer, to furnish evidence that such minor does comply with the requirements of this act, and any person, company or corporation failing or neglecting to exact such school attendance from such minors, shall be liable as provided for in section 2 of this act; provided, such person, company or corporation shall not have made provision for the private instruction of such minors.

Regarding minors over fourteen and under sixteen who cannot read and write English.

SEC. 4. That every parent, guardian or other person having charge or control of any child under the age of sixteen who has been discharged from any business in order to be afforded an opportunity to receive instructions or school-

Where children have been discharged from employment by reason of this act.

ing, shall send such child to some public or private school until such child shall have acquired such instruction as section 3 of this act requires, and in case of failure on the part of said parent, guardian or other person to comply with the provisions of this section and of section 1 of this act, unless such child shall have been excused from such attendance by the superintendent of public schools or the clerk of the board of education in special village and township districts for reasons stated in section 1 of this act, such parent, guardian or other person shall be deemed guilty of a misdemeanor, and shall, on conviction, be liable to a fine of not less than five dollars or not more than twenty dollars for the first offense, and not less than twenty for each subsequent offense, or to imprisonment for not less than one month nor more than three. The said fines, when paid, to be added to the public school funds of such school district in which the offense occurs.

Habitual
truants.

SEC. 5. That all children between the ages of seven and fourteen years who are habitual truants from school, or while in attendance at any public or private school are incorrigible, vicious or immoral in conduct; and all children between said ages, and all minors between the ages of fourteen and sixteen who cannot read and write the English language, who absent themselves habitually from school, or who while in attendance at any public or private school are incorrigible, vicious or immoral in conduct, or habitually wander about the streets and public places during school hours, having no business or lawful occupation, shall be deemed juvenile disorderly persons and subject to the provisions of this act.

Truant officers
to be employed
in certain
cities.

SEC. 6. That in cities of the first and second class the board of education of said cities shall be required to employ one or more truant officers to assist in the enforcement of this act, said truant officer to be vested with police powers, and shall be authorized to enter factories, workshops, stores and all other places where such children may be employed, and perform such other services as the superintendent of schools or the board of education may deem necessary to the preservation of the morals and good conduct of school children and for the enforcement of this act, and in special village township districts the board of education shall be required to appoint some constable or other person as truant officer, with same power as said officers have in said cities, and the compensation of such officers shall be fixed by the board of education.

Truant officers
to make daily
reports.

SEC. 7. That the truant officers shall make daily reports to the superintendent of public schools during the school term in cities, and to the clerk of the board of education as often as the clerk shall require it to be done in special village and township districts, and he shall also keep a record of his transactions, subject to the inspection of the members and officers of the board of education, and it shall be the duty of the clerk of the board of education to provide suitable blanks for said truant officer.

SEC. 8. That it shall be the duty of all truant officers to examine into all cases of truancy, when any such come before their notice, or when requested to do so by the superintendent of public schools, or by the board of education, and to warn such truants, their parents or guardians, in writing, of the final consequences of truancy if persisted in, and also to notify the parent, guardian or other person having the charge or control of any child between the ages of eight and fourteen years, that the said child is not attending any school, and to require said parent, guardian or other person to cause the said child to attend some recognized school within five days from said notice, and it shall be the duty of said parent, guardian or other person having the legal charge and control of said child, to cause the attendance of said child at some recognized school; if said parent, guardian or other person having the legal charge and control of said child, shall willfully neglect, fail or refuse to cause said child to attend some recognized school, it shall be the duty of said officers to make, or cause to be made, a complaint against said parent, guardian or other person having the legal charge or control of such child, in any court of competent jurisdiction in the city, special village or township district, in which the offense occurred, for such refusal, failure or neglect, and upon conviction thereof, said parent, guardian or other person, as the case may be, shall be punished by a fine of not less than five dollars nor more than twenty dollars, or the court may in its discretion require persons so convicted to give bond in the penal sum of one hundred dollars, with one or more sureties to be approved by said court, conditioned that said persons so convicted shall cause the child or children under his or her legal charge or control to attend some recognized school within five days thereafter, and to remain at said school during the term prescribed by law; provided, that if said parent, guardian or other person in charge of such child shall prove inability to cause said child to attend said recognized school, then said parent, guardian or other person shall be discharged, and said court, upon complaint of said truant officer or other person, that said child is a juvenile disorderly person, as described in section 5 of this act, proceed to hear such complaint, and if said court shall determine that said child is a juvenile disorderly person within the meaning of this act, such child shall be deemed guilty of a misdemeanor, and said court shall thereupon sentence said child to some juvenile reformatory; provided, that no child or children over ten years old shall be sentenced by any court to a county children's home; and that where in the judgment of the trustees of any such home, it shall be declared by resolution at a regular meeting by them held, that the character of any child thus sentenced and kept at such home is vicious, and so bad as to be detrimental and harmful to the habits and good morals of other children at such home, said trustees are hereby authorized and empowered to remove such child or children to the boys'

Duties of
truant officers.

industrial school at Lancaster, Ohio, or the girls' industrial home at Delaware, Ohio, as the case may be, nor shall such child or children be kept at any such home beyond the period prescribed in section 1, or until such child shall arrive at the age of sixteen years, unless sooner discharged by the board of trustees of said reformatory or home. Provided, however, that said sentence may be suspended in the discretion of the court, for such time as the child shall regularly attend school and properly deport himself or herself. It is further provided that if for any cause the parent, guardian or other person having charge of any juvenile disorderly person as defined in this act, shall fail to cause such juvenile disorderly person to attend said recognized school, then complaint against such juvenile disorderly person may be made, heard and tried and determined in the same manner as provided for in case the parent pleads inability to cause said juvenile disorderly person to attend said recognized school. * * *

Proceedings
when this act
is violated.

SEC. 9. That it shall be the duty of officers empowered or appointed under this act to assist in the enforcement thereof, to institute, or cause to be instituted, proceedings against any parent, guardian or other person having legal control or charge of any child, or corporation violating any of the provisions of this act; provided, that this law shall not be operative in any school district where there are not sufficient accommodations to seat children compelled to attend school under the provisions of this act, and that no prosecution shall be instituted against any parent, guardian or other person or child in charge of such, unless they have received due notification from an officer empowered under this act that they are acting in violation of this act.

When this act
may be sus-
pended for a
time.

SEC. 10. When any truant officer shall discover to his full satisfaction any child under the age of fourteen years, wholly or partially dependent upon his or her own labor for a living, or who shall be the support of others unable to provide for their own sustenance, or when in the judgment of the superintendent of the schools, or of the board of education, it may be necessary for such child to contribute to the support of the family of which he or she is a member, it shall be the duty of said truant officer to report such case to the proper authorities, whose duty it is to look after and care for the poor, and to endeavor to obtain such relief as may release such child from labor for such length of time each year as will be required for compliance with section 1 of this act, but such child shall not be declared a pauper or removed to any infirmary, reformatory or children's home, unless he or she shall willfully neglect to take advantage of the provisions made by said truant officer for his or her relief and instruction, and said truant officer failing to obtain such relief, the superintendent of schools, or the board of education, may make suitable arrangements for the private instruction of such child while so adversely conditioned.

SEC. 11. That it shall be the duty of all principals and teachers of all schools, public and private, to report to the clerk of the board of education of the city, special village or township districts in which schools are situated, the names, ages and residence of all pupils in attendance at their schools, together with such other facts as said clerk may require, in order to facilitate the carrying out of the provisions of this act, and the said clerk shall furnish blanks for said purpose, and said reports shall be made in the last week of September, December, February and April in each year; and it shall be the further duty of said principals and teachers to report to the truant officer, the superintendent of schools or the clerk of the board of education, all cases of truancy or incorrigibility in their respective schools as soon after these offenses shall have been committed as practicable.

Duty of
teachers and
principals
under this act.

SEC. 12. That when any of the provisions of this act are violated by a corporation, proceedings may be had against any of its officers or agents of said corporation, who in any way participate in, or are cognizant of such violation by the corporation of which they are the officers or the agents, and said officers or the agents shall be subject to the same penalties as individuals similarly offending.

When corpora-
tions violate
this act.

SEC. 13. Any person or officer mentioned in this act, and designated as having certain duties to perform in the enforcement of any of its provisions, neglecting to perform any such duties, shall be liable to a fine of not less than twenty-five dollars, nor more than fifty dollars for each and every offense; and mayors, justices of the peace and probate judges shall have jurisdiction to try the offenses described in this act, and their judgment shall be final.

Penalty.

SEC. 14. Any provision of statutes in force when this act takes effect, which conflicts with any provisions of this act, shall, to the extent it is inconsistent with the latter, and not otherwise, be held to be superseded by this act. The provisions of this act shall apply to children entitled under existing statutes to attend school at the institution for the education of the blind, and the deaf and dumb. Other provisions of statutes in force, relating to school affairs, shall not be affected by this act. Sections 4023, 4024, and 4028 of the Revised Statutes are hereby repealed.

Relating to
other statutes.

Passed April 25, 1890.

AN ACT

To authorize the creation and to provide for the operation of tribunals of voluntary arbitration to adjust industrial pursuits between employers and employed.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio,* That the court of common pleas of each county, or a judge thereof in vacation, shall have the power, and upon the presentation of the petition, or of the agree-

ment hereinafter named, it shall be the duty of said court, or a judge thereof in vacation, to issue, in the form hereinafter named, a license or authority for the establishment within and for each county of tribunals for voluntary arbitration and settlement of trade disputes between employers and employed in the manufacturing, mechanical, or mining industries.

SEC. 2. The said petition or agreement shall be substantially in the form hereinafter given, and the petitions shall be signed by at least forty persons employed as workmen and by four or more separate firms, individuals or corporations within the county, or by at least four employers, each of whom shall employ at least ten workmen, or by the representative of a firm, corporation, or individual employing not less than forty men in their trade or industry; provided, that at the time the petition is presented, the judge before whom said petition is presented, may, upon motion, require testimony to be taken as to the representative character of said petitioners, and if it appears that the said petitioners do not represent the will of a majority, or at least one half of each party to the dispute, the license for the establishment of the said tribunal may be denied, or may make such other order in this behalf, as to him shall seem fair to both sides.

SEC. 3. If the said petition shall be signed by the requisite number of both employers and workmen, and be in proper form and contain the names of the persons to compose the tribunal, being an equal number of employers and workmen, the judge shall forthwith cause to be issued, a license substantially in the form hereinafter given, authorizing the existence of such tribunal, and fixing the time and place of the first meeting thereof, and an entry of the license so granted shall be made upon the journal of the court of common pleas of the county in which the petition originated.

SEC. 4. Said tribunal shall continue in existence for one year from the date of the license creating it and may take jurisdiction of any dispute between employers and workmen, in any mechanical, manufacturing, or mining industry or business, who shall have petitioned for the tribunal, or have been represented in the petition therefor, or who may submit their disputes in writing to such tribunal for decision. Vacancies occurring in the membership of the tribunal shall be filled by the judge or court that licensed said tribunal, from three names presented by the members of the tribunal remaining of that class in which the vacancies occur. The removal of any member to an adjoining county shall not cause a vacancy in either the tribunal or the post of umpire. Disputes occurring in one county may be referred to a tribunal already existing in an adjoining county.

The place of umpire in any of said tribunals and vacancies occurring in such place, shall only be filled by the mutual choice of the whole of the representatives, of both em-

ployers and workmen constituting the tribunal, immediately upon the organization of the same. The umpire shall be called upon to act after disagreement is manifested in the tribunal by failure during three meetings held and full discussion had. His award shall be final and conclusive upon such matters only as are submitted to him in writing and signed by the whole of the members of the tribunal, or by parties submitting the same.

SEC. 5. The said tribunal shall consist of not less than two employers or their representatives and two workmen. The exact number which shall in each case constitute the tribunal shall be inserted in the petition or agreement, and they shall be named in the license issued. The said tribunal, when convened, shall be organized by the selection of one of their number as chairman and one as secretary, who shall be chosen by a majority of the members, or if such majority cannot be had after two votes then by secret ballot, or by lot, as they prefer.

SEC. 6. The members of the tribunal shall receive no compensation for their services from the city or county, but the expenses of the tribunal, other than fuel, light, and the use of the room and furniture, may be paid by voluntary subscription, which the tribunal is authorized to receive and expend for such purposes. The sessions of such tribunal shall be held at the county seat of the county where the petition for the same was presented, and a room in the court house for the use of said tribunal shall be provided by the county commissioners.

SEC. 7. When no umpire is acting, the chairman of the tribunal shall have power to administer oaths to all witnesses who may be produced, and a majority of said tribunal may provide for the examination and investigation of books, documents and accounts pertaining to the matters in hearing before the tribunal, and belonging to either party to the dispute; provided, that the tribunal may unanimously direct that instead of producing books, papers and accounts before the tribunal an accountant, agreed upon by the entire tribunal, may be appointed to examine such books, papers and accounts, and such accountant shall be sworn to well and truly examine such books, documents and accounts, as may be presented to him, and to report the results of such examination in writing to said tribunal. Before such examination the information desired and required by the tribunal shall be plainly stated in writing and presented to said accountant, which statement shall be signed by the members of said tribunal, or by a majority of each class thereof. Attorneys at law or other agents of either party to the dispute shall not be permitted to appear or take part in any of the proceedings of the tribunal, or before the umpire.

SEC. 8. When the umpire is acting he shall preside, and he shall have all the powers of the chairman of the tribunal; and his determination upon all questions of evidence, or other questions, in conducting the inquiries then pending,

shall be final. Committees of the tribunal, consisting of an equal number of each class, may be constituted to examine into any question in dispute between employers and workmen which may have been referred to said committee by the tribunal, and such committee may hear and settle the same finally, when it can be done, by a unanimous vote, otherwise the same shall be reported to the full tribunal, and be there heard, as if the question had not been referred. The said tribunal, in connection with the umpire, shall have power to make, ordain and enforce rules for the government of the body when in session, to enable the business to proceed with in order, and to fix its sessions and adjournments; but such rules shall not conflict with this statute, nor with any of the provisions of the constitution and laws of Ohio.

SEC. 9. Before the umpire shall proceed to act, the question or questions in dispute shall be plainly defined in writing, and signed by the members of the tribunal, or a majority thereof of each class, or by the parties submitting the same; and such writing shall contain the submission of the decision thereof to the umpire by name, and shall provide that his decision thereon, after hearing, shall be final. The umpire shall be sworn to impartially decide all questions that may be submitted to him during his term of office. The submission and his award may be made in the form hereinafter given, and said umpire must make his award within ten days from the time the question or questions in dispute are submitted to him. Said award shall be made to the tribunal; and if the award is for a specific sum of money, said award may be made a matter of record by filing a copy thereof in the court of common pleas of the county wherein the tribunal is in session. When so entered of record it shall be final and conclusive, and the proper court may, on motion of any one interested, enter judgment thereon; and when the award is for a specific sum of money, may issue final and other process to enforce the same.

SEC. 10. The form of the joint petition or agreement praying for a tribunal under this act shall be as follows:

To the Court of Common Pleas of _____ County (*or to a judge thereof, as the case may be*):

The subscribers hereto, being the number and having the qualifications required in this proceeding, being desirous of establishing a tribunal of voluntary arbitration for the settlement of disputes in the _____ (*here name the branch of industry*) trade, and having agreed upon A, B, C, D and E, representing the employers, and G, H, I, J and K, representing the workmen, as members of said tribunal, who each are qualified to act thereon, pray that a license for a tribunal in the _____ trade may be issued to said persons named above.

Employers.	Names.	Residence.	Works.	No. Employes.

Employes.	Names.	Residence.	By whom employed.

SEC. 11. The license to be issued upon such petition may be as follows:

State of Ohio,)
 County,) ss:

WHEREAS, The joint petition and agreement of four employers (*or representatives of a firm, corporation or individual, employing forty men, as the case may be*), and forty workmen has been presented to this court (*or if to a judge in vacation, so state*), praying the creation of a tribunal of voluntary arbitration for the settlement of disputes in the _____ trade within this county, and naming A, B, C, D and E, representing the employers, and G, H, I, J and K, representing the workmen. Now in pursuance of the statutes for such case made and provided, said named persons are hereby licensed and authorized to be and exist as a tribunal of voluntary arbitration for the settlement of disputes between employers and workmen for the period of one year from this date, and they shall meet and organize on the ____ day of _____, A. D. _____, at _____.

Signed this ____ day of _____, A. D. ____.
 _____ Clerk of the Court of Common Pleas of _____ County.

SEC. 12. When the tribunal agrees to submit a matter in controversy, to the umpire, it may be in form as follows:

We, A, B, C, D and E, representing employers, and G, H, I, J and K, representing workmen, composing a tribunal of voluntary arbitration, hereby submit and refer unto the umpirage of L (*the umpire of the tribunal of the _____ trade*), the following subject-matter, namely: [*Here state fully and clearly the matter submitted.*] And we hereby agree that his decision and determination upon the same shall be binding

upon us, and final and conclusive upon the question thus submitted; and we pledge ourselves to abide by and carry out the decision of the umpire when made.

Witness our names this — day of —, A. D. —.
[*Signatures.*]

SEC. 13. The umpire shall make his award in writing to the tribunal, stating distinctly his decision on the subject-matter submitted. And when the award is for a specific sum of money, the umpire shall forward a copy of the same to the clerk of the proper court.

AN ACT

To provide against the payment of wages in scrip, orders, etc., and against selling goods or supplies to employes at excessive prices.

SEC. 7015. It shall be unlawful for any persons, firm, company, or corporation to sell, give, deliver, or in any manner issue, directly or indirectly, to any person employed by him or it, in payment of wages due for labor, or as advances on the wages of labor not due, any scrip, token, draft, check, or other evidence of indebtedness payable or redeemable otherwise than in money: any violation of the provisions of this section shall be punishable by a fine not less than twenty-five nor more than one hundred dollars, or imprisonment of not more than thirty days, or both; and the amount of any scrip, token, check, draft, order, or other evidence of indebtedness, sold, given, delivered, or in any manner issued, in violation of the provisions of this section, shall be recovered in money at the suit of any holder thereof, against the person, firm, company, or corporation selling, giving, delivering, or in any manner issuing the same; and any scrip, token, check, draft, order, or any other evidence of indebtedness issued in violation of the provisions of this section, and presented by the holder thereof, shall be taken as prima facie evidence in any court of the guilt or indebtedness of any person, firm, company, or corporation selling, giving, delivering, or in any manner issuing the same, and for the purposes of this act, in case of a firm or corporation, the person selling, giving, delivering, or in any manner issuing said scrip, token, check, draft, order, or other evidence of indebtedness shall be the defendant to the criminal action, and the firm, company, or corporation shall be held as the defendant in the civil action. Nothing in this section shall apply or affect the right of any person, firm, company or corporation from giving orders on any store or business house, or firm in the business of profits of which he has no interest, directly or indirectly.

SEC. 7016. Whoever compels, or in any manner seeks to compel, or attempts to coerce an employe of any person, firm, or corporation to purchase goods or supplies from any particular person, firm or corporation, shall be fined not more than one hundred nor less than twenty dollars, or imprisoned

not more than sixty days, or both; and whoever sells goods or supplies of any kind, directly or indirectly, to his employe, or pays the wages of labor of his employes in goods or supplies of any kind, directly, or through the invention of scrip, order, or other evidence of indebtedness, at higher prices than the reasonable or current market value in cash of such goods or supplies, shall be liable to like punishment and penalties above specified, and shall, in addition thereto, be liable in civil action to the party aggrieved, in double the amount of any charges made for such goods or supplies in excess of the reasonable or current market value in cash, of such goods or supplies.

SEC. 7017. The prosecuting attorney of any county, upon complaint made to him of any violation of either of the two preceding sections within his county, shall cause such complaint to be investigated before the grand jury.

AN ACT

To amend "An act to secure prompt payment of wages of certain employes twice in each month," passed March 21, 1887 (vol. 84, page 214).

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio,* That the above recited act be so amended as to read as follows:

SEC. 1. That every incorporated manufacturing, mining, mercantile, street-railroad, telegraph, telephone, express, water company, and construction companies, or contractors building railroads, shall pay, in lawful money, or by check, draft or order, payable in lawful money, at sight or on demand, on a bank located at a distance not greater than eight miles from the place where said labor was performed, twice in each month, each and every employe engaged in its business, the wages earned by such employe to within ten days of the date of said payment; provided, however, that if at any time of payment any employe shall be absent from his regular place of labor, he shall be entitled to said payment at any time thereafter, during their regular business hours, upon demand; and provided, further, that said employer may retain at each payment, any amount said employer may order withheld from his or her wages for rent, powder, tools, tool sharpening, or oil, due said employer.

Payment of
wages of certain
employes twice
a month.

Retention of
certain
amounts.

[Section 2, as amended March 27, 1889.]

SEC. 2. Any corporation mentioned in section 1 of this act, violating any provisions of this act, shall be punished by a fine not exceeding one hundred and not less than fifty dollars. Justices of the peace, mayors and police judges shall have final jurisdiction in all cases arising under the provisions of this act; and a corporation shall be notified by warrant to be served upon the president, secretary, treasurer, or managing agent thereof; provided, that the defendant shall be entitled, on demand, to a trial by jury. If such prosecution be before a justice of the peace, and a trial by

jury be not waived, the said justice shall issue a venire to any constable of the county, containing the names of sixteen electors of the county, to serve as jurors to try such case, and make due return thereof. Each party shall be entitled to two peremptory challenges, and shall be subject to the same challenges as jurors are subject to in criminal cases in the court of common pleas. If the venire of sixteen names be exhausted without obtaining the required number to fill the panel, the justice may direct the constable to summon any of the bystanders to act as jurors; but costs shall not be required to be advanced or paid by a person or an officer authorized or required by statute to prosecute such cases; and if the defendant be acquitted, or if he be convicted, and committed to jail in default of payment of fine and costs, the justice, mayor, or police judge, before whom the case was brought, shall certify such costs to the county auditor, who shall examine, and, if necessary, to correct the account, and issue his warrant to the county treasurer in favor of the respective officers to whom costs are due to the amount due to each; provided, complaint for such violation is made within thirty days from date thereof: providing that in pursuance of and under this act there shall not be more than one conviction of the same corporation during any two weeks. And it shall be the duty of the inspector of shops and factories, on complaint of three or more employes of such corporation to enforce the provisions of this act.

AN ACT

"To establish a school of mines and mine engineering in the Ohio agricultural and mechanical college."

Ohio state university establishment of a school of mines.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That the trustees of the Ohio state university be and they are hereby required to establish in said university, a school of mines and mine engineering, in which shall be provided the means for studying scientifically and experimentally the survey, opening, ventilation, care and working of mines; and said school shall be provided with a collection of drawings, illustrating the manner of opening, working and ventilating mines, and with the necessary instruments for surveying, measuring air, examining and testing the noxious and poisonous gases of mines, and [also] with [the] models of the most improved machinery for ventilating and operating [all the various kinds of] mines with safety to the lives and health of those engaged. Said school shall also be provided with complete mining laboratories for the analysis of coals, ores, fire-clays and other minerals, and with all the necessary apparatus for testing the various coals, ores, fire-clays, oils, gases, and other minerals.

Course of study; school apparatus, etc.

Employment and duties of instructors.

SEC. 2. Said trustees shall employ competent persons to give instruction in the most improved [and] successful methods of opening, (and operating), surveying and inspecting mines, including the methods and machinery employed

for extracting coal, ore, fire-clay, oil, gas and other minerals from the pit's mouth and for facilitating the ascent and descent of workmen, the draining and freeing of mines from water, the causes of the vitiation of air, the quantities of fresh air required under various circumstances, natural ventilation, mechanical ventilation by flues and fans, and other ventilating machinery, the use of air engines, air compressors and coal cutting machinery; also instruction in the various uses of coals, ores, fire-clays, oils, gases and other minerals, and the methods of testing, analyzing and assaying such minerals; also the methods employed in metallurgical and other processes in the reduction of ores and in determining the qualities of metals, particularly iron and steel, as shown by practical and laboratory tests; and there shall be kept in a cabinet properly arranged for ready reference and examination suitably connected with said school of mines [samples of the] specimens from the various mines in the state, which may be sent for analysis, together with the names of the mines and their localities in the counties from which they were sent, and the analysis and a statement of their properties attached; it shall also be his duty to furnish analysis of all minerals found in the state and sent to him for that purpose by residents of this state.

Cabinet of specimens to be kept.

SEC. 3. There is hereby appropriated out of the general revenue fund the sum of three thousand five hundred dollars (\$3,500), to be expended in the equipment, support and maintenance of said school of mines, as provided for in the first and second sections of this act.

Appropriation.

AN ACT

"To permit mine and quarry operators to cross roads," passed February 17, 1893.

SECTION 1. That any individual, partnership or corporation in Ohio, who may now or hereafter own any land or any interest either in fee or otherwise, containing any coal, clay or stone, and over any portion of which shall pass any state, county or township road or public highway, with the consent of the board of county commissioners in case of state or county roads, or township trustees in case of township roads, shall have and are hereby authorized to excavate, mine, quarry through or under any such road; provided, however, that before said work shall be commenced, said individual, partnership or corporation shall execute and deliver to the board of county commissioners of any such county, a bond with good and sufficient surety, in such an amount as shall be by said board considered sufficient to cover all damages that may accrue by reason of excavating, mining or quarrying through or under any such road, the same to be approved by said board; conditioned, that while crossing over or mining or quarrying under any such road, a safe and unobstructed passageway or road shall be kept open by such individual, partnership or corporation for public use, and as soon as practicable the said road shall be fully restored to its original safe and passable condition.

Conditions upon which mine and quarry operators permitted to undermine or cross public roads.

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